

BATH: A COMPARATIVE STUDY.

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THOSE who have much experience in directing the work of students will understand the difficulty of arousing in them a clear apprehension of the sensuous element in architecture, of that *architectonic* quality, which is neither pictorial, nor sculptural, nor rhythmic, nor perhaps altogether structural. Each art has its own special phase of beauty, incommunicable in the forms of any other; and, for the student, a clear recognition of the order of impressions which is peculiar to his art, which in fact defines it, is the first step in æsthetic culture. To discriminate then, in every species of architecture, the essential architectonic element, to disentangle this element from others, to compare the various expressions of it,—here, one may say, lies the true business of the student. And this central secret of architecture can be penetrated only through a certain intimacy, by personal contact with the actual works of architecture. In painting, the pictorial element; in poetry, the element of rhythm; in architecture, the architectonic element; the sensuous element peculiar to any art, is learned by direct experience, and cannot be felt through the medium of any representation. The supreme teacher of architecture is architecture itself. Models, verbal description, drawings, photographs,—things valuable enough, as everyone knows, in their way,—are useless here. For the essential properties of architecture are properties of solids;—hardness, weight, texture, density, mass, actual size, definite materials placed in a definite order, fixed contours, immutable outlines. Of all such qualities the complex result is apprehended only by the senses, by sight and touch; it is indescribable in words, as the scent of a flower or the peculiar quality of a wine is indescribable. Photographs, and even drawings, of architecture, stereotyping as they do a given moment, a single phase, are no true presentment of it; for a great work of architecture has a kind of *personality*, fluctuating with mood and circumstance, and can be realised only by those who ramble about its arcades, and pass in and out of the doorways, and who watch for its expression, not at high noon only, but in the twilight and in the morning. As, in the Arabian tale, the precious drugs concealed in the handle of the bat transmitted their virtue to him who held it, so in architecture, virtue exhales from the antique walls and stones.

The law then, the universal law, is that art addresses itself primarily to the senses, and only through the senses to the understanding and the imaginative reason. What is really important to the student is—not to get together a sort of mental compendium of architecture from representations of it,—but to use all representations, books, photographs, drawings, to

sustain and reinforce the impressions which he himself has received from personal contact with works of architecture. No doubt this principle is generally understood, but a more precise recognition of it might save us from some mistakes; from the mistake,—may I say it?—of expecting students in the elementary stage, in the first year or two of their course, to form ideas of some foreign and remote and highly specialised kind of architecture,—Greek let us say,—of which they have not seen, nor are likely to see, even the fragments. To draw models in the abstract may perhaps be a discipline, but it is not the discipline of architecture.

In the hope, therefore, of encouraging students in the pursuit of this personal intimacy with existing works of architecture, I propose this evening to offer some brief comment on Bath, and incidentally, Wells; cities well known, easy of access, at no great distance apart, possessing between them a fine series of architecture of different schools, the diversity of which invites fruitful comparison. For those who are no longer students, who are immersed in the practice of our profession, and to whom Bath and Wells and anything I may have to say about them will be but as a thrice-told tale, I wish patience, and pleasant memories, as for a short time we wander in thought through those familiar streets.

It is as a Roman sanatorium,—*Aquae Solis*,—that Bath emerges from the region of fable. The remains of the Roman baths,—a small fragment only of the *Thermae* which, with Temples and Gymnasia, once covered, so antiquaries tell us, more than seven acres,—are nevertheless the most considerable relics of Roman architecture in Britain; and to the student of that architecture, striving to piece together his odds and ends of knowledge,—to bring all into focus,—most valuable. Indeed to come upon these remains, not under a southern sky, but in our own pastoral Somerset, is to receive a fresh impression of Roman power and fortune. It is surely with no ordinary emotions that we see and touch the very walls, the very columns, which were built in remote Britain in the second century. From these *vestigia*, these large foot-prints, the stature, even the features, of Hercules may be inferred: we perceive the strength of the giant, and the coarseness. And so, wandering amidst ruined walls and fallen columns, among the fragments of sculptured stone now sheltered in Brydon's graceful peristyle, all that we know, or have heard, of Roman architecture seems to acquire an instant reality; its strong lineaments, at once stern and ornate, self-reliant and luxurious, grow more distinct. Let us for a few minutes consider some aspects of the image that it presents.

It is not easy to explain the spell which Roman architecture casts over us, its defects are so obvious, its virtues less obvious. How different, we say, is this from the Greek! how inferior its spirit to the Greek spirit,

“Mild and inscrutably calm.”

Such is the result of bracketing together schools of architecture by superficial resemblance, and ignoring the deeper influence of temperament. The temperament of Roman architecture is not Dorian, is not Ionian, is not even Corinthian, it is Composite or Roman. The mixture of diverse elements, of conflicting ideas, is characteristic of it. That curious ambiguity of the Romans,—you cannot call it indecision,—which meets us in other departments, meets us here also. Just as their altars smoked indifferently to the Syrian Astarte and to the Genius of Caesar, so too in their architecture there is a divided allegiance, a crude eclecticism; it throws together all sorts of incongruous elements, it adds the Ionic to the Corinthian, and compromises the lintel with the arch, it mixes Greek simplicity with the pomp of Asia, and is severe and grandiose at the same moment. In truth what the Romans were always looking for was not perfection of any kind, but power, and this easy tolerance of inconsistencies in their architecture goes far to explain its vogue, its wide adaptability. Nothing was rejected that might tend to make it more flexible, more adaptable to all uses. For the first time architecture steps

down from its lofty isolation as an art sacred to the temple and the palace, and becomes in a certain sense popular.

The coarseness, too, of Roman architecture is not an accident but an essential of it, a masculine grossness and predominance, which also has a place in art. For this hardihood, this coarseness of fibre in it, is not a negative quality only, as implying no more than the absence of refinement, it is an energy, a faculty; so that while Roman architecture was often clumsy and unimaginative it was never puerile or trifling; this *fortuna virilis* kept it free from the effeminacy which spoiled so much work of the Renaissance, and especially kept it true to a grand tradition of scale;—Roman architects, for instance, never forgetting the dignity of the Order, never degrading it to a toy, as some later architects of Bath did, notably in the *Circus*. And coarseness here has such an intimate and immediate connection with endurance that it becomes really a sort of exaggerated emphasis of strength. Strength in all forms was the true divinity of the Romans, their genius was for construction, they thought and worked always for eternal durability. Here, in Bath, violence and the hand of time have not obliterated, nor much impaired, their massive basements. What stone-work is this which, alone of all the masonry in Bath, shows no evidence of decay? What is the secret of this concrete, this mortar, made without Portland cement, yet still hard and impenetrable as rock? The conspicuous durability of Roman architecture makes most later work seem temporary in the comparison, and adds pathos to its ruin.

Nevertheless, by reason of its idealism, this robust heterogeneous architecture has left its large impress on the world for all time. And one feels that the ideals of the Roman people centred very much in the *city*; the ideal life with them was the urban life. Poets indeed might celebrate rural joys, as poets are wont, but to the true sons of Romulus the life of cities was the best. They loved the secure seat, the interests of the temples, of the forum, of the theatre, of the baths. And this instinct of theirs moulded and coloured their conception of architecture, so that they thought of it not principally as domestic, in the modern sense, nor as religious, but as civic; as the heritage of Roman citizenship and the emblem of Roman order, as the decorum and piety of civil life. Therefore they founded cities, and laid them out with a wise prevision, and adorned them with noble monuments. They did not wait until a hundred thousand people had congested themselves in squalid alleys, and then begin to talk about town-planning.

But we may not stay any longer in this strange and silent and fascinating place. As we stand here on Roman pavements, amid the ruin of so much greatness, while the electric cars are sounding in the street above us, the awful gulf of eighteen centuries seems to close up, and we join hands, for a moment, with the Masters of the World.

For a city which is the seat of an ancient bishopric the mediæval record in Bath is scanty. It might almost seem as though, in the quaint partnership of the two cities, the illustration of the Gothic phase of architecture had been left to Wells. Not the cathedral only, but the whole aspect of Wells, preserves the spirit of the middle ages. In those narrow streets of gabled houses, the little market-place, the gateways and closes, the cathedral with palace and college,—all clustering together there among the wooded Mendips,—in all these things, and in the ecclesiastical air of the place, and in a certain neat compactness which it has, and in the gossip and leisure of little town life, there still lives for us something of the true atmosphere of mediæval art. But nothing of this atmosphere exists in Bath, where the Abbey church stands alone, in a sort of priestly isolation, the last word of Gothic art in a city of the Renaissance.

Bath Abbey was begun in 1499, replacing earlier structures, was partly ruined at the

Dissolution, and partly rebuilt between 1597 and 1616. Thus it belongs entirely to the decadence of Gothic architecture, and has for us something of the mournful interest of a survival; as of one who, having outlived his contemporaries and friends, yet lingers, a stranger in a changed world. For by the middle of the sixteenth century the drama of mediæval art was played out. That architecture which meets us at Wells cathedral in the flush and animation of a wonderful youth, with the air of spring about it, we find at Bath Abbey in the last stage of a no less wonderful decline; beautiful still, with the beauty appropriate to winter. For indeed periods of decadence and death have their appointed place in the great cycle of art, just as periods of youth and prime have; each is necessary, each comes with its own special order of impressions, its own special gifts for the imagination. In Landor's majestic words: "Everything hath its use; Life to teach us the contempt of Death, Death the contempt of Life." And so, in Wells cathedral,—in that vivid and dramatic west front of which, since Mr. Prior and Mr. Lethaby have spoken of it, nothing remains to be said,—in Wells cathedral throughout, not the sculpture only, but every line of the architecture, is intense with life; life triumphant, life contemning death. But in Bath, in this city of pagan memories, it is the pagan sentiment which finds expression in the last words of Gothic art. Everybody knows those strange representations of the Dance, or Triumph, of Death, which one meets here and there in the painting and sculpture of the later middle ages, grotesque works, full of a haunting sense of the weariness and futility of life, of the greatness of death. Bath Abbey recalls such works, for here we find architecture expressing, in its grave monumental way, the same ideas. In these rigid attenuated forms, from which fire and passion and energy have departed, we see the composure, the high indifference, of death.

And, quite in accord with this, there is in Bath Abbey a curious felicity and smoothness of *technique*. The vaults are the best of fan-vaults, the proportions, at least of the interior, faultless. We feel that the end is achieved; the fancy, the invention, the experiment, of three centuries of Gothic art, seemingly inexhaustible, have come by inevitable steps to this, and terminate here, in this chill perfection.

The Roman city, the mediæval city, of Bath are gone, or survive only in the profoundly interesting fragments which we have been considering. But the famous Renaissance city of the eighteenth century has a different claim on our regard,—it exists. We still walk the streets, still pass in and out of the buildings, which are associated with a crowd of brilliant and attractive people, and with creatures of the imagination hardly less real. The Assembly Rooms, the Pump Room, Milsom Street, the Parade, the Crescent, are much the same to-day as when Miss Burney's, and Miss Austen's, and Sheridan's, lively personages played their parts on the background of this architecture; itself almost a branch of literature, with qualities of the intellect rather than of the emotions; but nevertheless possessing, quite apart from its historical associations, and from the literary fragrance which clings to it, a real charm and distinction. And in speaking of the eighteenth century architecture of Bath,—need I say it in this room and to this audience?—I include also the work of Brydon in the nineteenth; for, by the turn of his genius, and by his faculty of identifying himself with his subject, Brydon rivalled, perhaps excelled, his predecessors, and shares their fame.

What then is the precise value to us of the particular phase of the Renaissance which Bath presents? The question is important, for no architecture has been more absurdly praised, or more absurdly blamed, and it merits neither extreme. "That beautiful city," says a celebrated historian, speaking of Bath, "which charms even eyes familiar with the masterpieces of Bramante and Palladio."—do not we recognise, in such a sentence, the note of exaggeration? On the other hand there have been critics, of the highest order, who have felt for this, and

indeed for all the different schools of the Renaissance, a profound dislike, and have covered them with intolerant scorn. Such wholesale condemnation is to be regretted, its tendency is gross and illiberal, and it fosters the common notion that art is a controversy of personal likes and dislikes, and subject to those ethical laws which apply to conduct. What should attract us in art, what we ought to look for in it, what alone makes it really valuable to us, is the promise of *life*. For our moments pass quickly, the individual life is circumscribed, much of it is lost in routine, in lethargy, in stereotyped emotions. Art comes to us with the promise of an enlarged, a fuller, a more various life,—more intense moments, multiplied sympathies. It offers us experiences, situations, modes of activity and thought, which altogether transcend the narrow individual lot; so that, by its magic, we live in a thousand lives, and share strange experiences, and walk in untrodden ways. And so, leaving generalities, we may conceive of architecture, not as expressing this or that set of powerful ideas, but as reflecting certain broad and luminous aspects of life, some more imposing, others less, but all in their degree valuable to us as part of the general heritage of culture; and its success will depend much more on the manner of the presentation than on the actual worth of the aspect presented. For life is extremely complex, it is not made up entirely of heroic or exalted moods, and art may very well occupy itself with aspects of life which, though not the noblest, are nevertheless not ignoble. Here, in Bath, the Renaissance of the eighteenth century has no claim to creative genius, we must not look in it for the expression of great ideas, the pride of dominion, the ecstasy of the religious life; nor for passion, nor for mystery; its virtues are all social, domestic. It is the architecture of an age which was quick and critical, but not very imaginative or profound. It represents, it is even part of, the learned culture of its age; a culture singularly cool, unimpassioned and fastidious; devoted, in literature and art, to a certain classic ideal of form; pursuing an ideal correctness even in trivial things,—in an epigram, in the details of a room;—a culture which valued formula and hated eccentricity. It is the architecture of fine manners and courtly phrases, the reflection of a sparkling and highly finished existence passed amid much dancing and music; the classical sentiment of the age pervades it, the Dorian mood “of flutes and soft recorders.”

All art, by the law of its nature, must be, in a sense, romantic; and all art that has reached full attainment is, in a sense, classic. In the eighteenth century the word “classic” was taken in a more restricted meaning, yet, even in that meaning, one may say that there will always be a certain order of minds to which the classic ideal in art will appeal; minds attracted more by the one perfect expression, the one perfect outline, than by the careless opulence of romantic genius. On the other hand, those of us who are conscious of being most strongly drawn by the romantic element in art have all the greater need of the sedate and clarifying influence of the classic ideal. For the faults to which romantic art, even great romantic art, is prone,—profusion, excess, lack of discipline,—are precisely the faults which the classic ideal, by its lucidity and its restraint, exists to chasten. “Something of the severe,” says Landor, “hath always been appertaining to order and to grace: and the beauty that is not too liberal is sought the most ardently and loved the longest.” Restraint, severity, the resolute exclusion from one’s work of the superfluous, the crude first idea,—what a secret of style is there! For the severity of the classic ideal is not a negative quality, not an easy avoidance, not a refuge for intellectual poverty; it is formative, architectonic,—the concentration and economy of power.

So then in this Renaissance city of the eighteenth century the spirit of Roman decorum is revived; its streets and open places, and the order of its public and private edifices, were civic interests; and we have an architecture austere and sober, devoted to the classic ideal, and with little of the romantic in its mood. And yet with all this, and with much of grace and interest, there are mingled in this architecture some characteristic defects; defects which must be

understood if we are to appreciate its real merit. A certain sterility marks it, as though some hidden influence were obstructing its development. The century offered a clear field to the classical Renaissance, yet when we compare the architecture of 1800 with that of 1700 we perceive little progress or variety. On the whole there is a sleepy conformity to type, and if any considerable variation is essayed the variation proves degenerate; the constitutional defect of eighteenth century Renaissance being, in fact, a defect of variability. You remember how, in that wonderful book *The Origin of Species*, the great naturalist dwells upon what he calls the principle of Variation, the tendency in all animals and plants to exhibit variations from the normal,—“sports,” as the florists say;—and you remember too how he shows that this variability differs in different species, some possessing it in a high degree, while in others the power of variation is slight. Well, something like this law of organic life holds good in architecture too, and of course in the other arts. In all architecture there is the tendency to variation, but the degree of variability differs extremely in different schools. Gothic architecture, Wells cathedral for example, shows a variability, a readiness to “sport,” which is really astonishing, we can imagine it capable of variation almost without limit. Other schools of architecture are variable in different degrees, and here in Bath, in the classical Renaissance of the eighteenth century, we reach the extreme of a low degree of variability.

The theory on which the classical Renaissance was based may perhaps go far to explain this defect in it, the theory that the progress of architecture depends on following, with scholarly attention, a perfect model;—the perfect model here being the Rome of the Augustan age. Is there not in this an obvious confusion of thought? The perfect model is for the study, not for practice. Let it be agreed that Roman architecture of the first century is perfect, its being so makes it unfit to be a model for actual practice, since perfection admits of no development. It is a commonplace of philosophy that whatever is absolute cannot also be infinite; the two attributes, the absolute and the infinite, are mutually exclusive. Architecture then which is absolute, that is to say, finished, perfected, cannot be infinite,—unfinished, awaiting development,—cannot in fact be capable of essential variation; you may imitate it with scrupulous exactness, you cannot improve what is already perfect. And so we arrive at the general maxim that, as architecture approaches perfection its variability decreases, and with that its usefulness as a model for practice decreases also. Thus the early schools of the Renaissance, and the French school of the nineteenth century, show considerable powers of variation; but in both cases the variability is owing to imperfections, to the presence of elements quite foreign to the classical model; in the early schools it is owing to the local architecture with which the classical model was blended,—and partly to an imperfect knowledge of the model itself;—while French architecture of the last century laid all the world under contribution, and is variable by reason of its eclecticism.

But, though the classical Renaissance is limited in this way, it possesses another attribute which is often mistaken for variability; an attribute, as we have already noticed, of Roman architecture too, but which becomes more prominent in the Renaissance amid more complex conditions of life.—I mean adaptability. There is hardly any kind of building to which Renaissance architecture has not proved adaptable, from the greatest to the least, from the basilica of St. Peter to the small houses and shops which we see here in the streets of Bath. And this quality in it of adaptability is characteristic, for it is the serviceableness of an architecture whose temperament is somewhat detached and cold, which is distinguished by no very strong idiosyncrasy. When we come to compare this architecture of mild and rather homely sentiments with the architecture of passion and genius,—with Wells cathedral and Gothic architecture in general,—the value of adaptability becomes very evident. Gothic architecture, with all its abounding variability, its intense and flame-like imagination, is wholly without

adaptability. Do we doubt this? Do we need to remind ourselves of the disaster of the last century,—the effort, supported by so much enthusiasm, to adapt the solemn architecture of the religious ideal to commonplace and secular uses?

The various currents of thought and feeling which seek for expression in the architecture of an age are held, as it were, and directed, by the elements of strength and weakness,—by the limiting facts,—of the architecture itself; and the more we come to recognise these elements, these limiting facts, in the classical Renaissance of the eighteenth century, the better able are we to appreciate the qualities it offers us; its *finesse*; its delicate variations on the prescribed theme; and most of all its expression, its unique expression, of the amenities of domestic life. Domestic architecture,—architecture, that is to say, in which a definite sentiment of domesticity, of homeliness, is expressed,—belongs in a quite special sense to the Renaissance. Mediæval architecture had no place, in the epic solemnity of its mood, for a domestic quality, the little domestic architecture that remains to us from the Gothic period is significant of a somewhat arid and cheerless ideal. We must dismiss as improbable the alluring thought of a lost domestic architecture of the middle ages; what we really find at Wells, for instance, is the fortified castle of the Bishop,—a military stronghold,—the *Vicars' Close*,—a house of celibate vicars-choral of the cathedral,—works of interest indeed! but of an interest not properly domestic. It is only as we reach the end of the mediæval period, in the fifteenth century, that we come upon an architecture potentially domestic in feeling; and in the fifteenth century, long before the forms of architecture had changed, the Renaissance was already influencing its spirit. From the beginning onward one may say that the function of the Renaissance, the work for which it was reserved, was to bring the influence of architecture into the home of the plain citizen, to give in terms of architecture an expression of the domestic ideal. And so in these larger and smaller houses of Bath,—and in how many other places!—and especially perhaps in the interiors, we have not only the finished thought of eighteenth century architecture but the true measure of its originality; for it was just here, where the Roman model failed them, that the artists of the time became various and inventive. The cultured simplicity of these interiors,—these dainty parlours and staircases,—is admirable; and one is conscious sometimes of an almost *feminine* quality in the delicate proportions and cameo-like reliefs.

But it is time to turn away from this eighteenth century architecture of Bath, about which there still lingers the charm of an old-world refinement. No architecture has been more severely criticised, and doubtless it has its faults. Let us rather seek to emulate its virtues, its antique decorum, its frugality of ornament, its *civility*,—the subordination of personal whim to a civic interest.

VOTE OF THANKS FOR THE FOREGOING PAPER.

Mr. REGINALD BLOMFIELD, A.R.A., in the Chair.

Mr. MOWBRAY GREEN [*F.*], in proposing a vote of thanks to Mr. Ball, said he had treated his subject in a very broad and masterly way. However much he might differ from Mr. Ball in his details or as to his conclusions, he could sincerely agree with his general proposition, that the work of the Renaissance was to give to the plain man some idea of architecture in his domestic life. Mr. Ball had treated his subject so broadly that it was a little difficult to summarise a reply; he would

therefore deal with some side issues which the Paper suggested to him. The essence of the subject seemed to lie in the expressions "adaptable" and "variable" as used by Mr. Ball, and applied chiefly to Roman architecture. It was, he thought, with the adaptability of the Renaissance that they should be, in this particular subject of Bath, mainly concerned. Of course they were little pleased at the wholesale sweeping away of the sixteenth and seventeenth century houses, which,

it would be remembered, were beautifully portrayed round the margins of Gilmore's map made at the end of the seventeenth century. But, given a clear field for classic Renaissance, he held that the outstanding feature of Bath was that it presented an example of the way in which the development of a city was carried out with foresight and skill, which was amply justified by results. It was then practically the Roman city upon which the work of succeeding generations had been built up, and, with the exception of one or two continuations outside the walls, it measured only four hundred yards from wall to wall. He mentioned that in order to give some idea of the small extent of the city at that time; and that was the point which should be driven home in arriving at a just estimate of the value of the buildings as seen today. It was true that from the end of the seventeenth century up to 1725, the local men had tried to break through the traditions of the earlier ages, and they really introduced a comparatively fine, broad treatment in their frontages. The type of Renaissance which they used may have been very debased, but it was a very interesting type. But no method of rebuilding the city had been definitely adopted. It needed a master mind, bold enough to foresee and lay down great lines of development which could be carried out, humanly speaking, without change. Hence—and this was his special point—for a period of fifty years down to 1775 the ideal was faithfully followed, until the advent of Baldwin and the particular features of the Adam Brothers with a corresponding decorative treatment,—on that point he differed a little from Mr. Ball, who stated that the architecture was without much change from end to end of the century. But it was just the establishment of this ideal which did so much for Bath. They could afford, he thought, to pass by Mr. Ball's criticism of a "dull conformity to type." But there was another important point touched upon in Mr. Ball's paper—viz. the question of scale. Mr. Ball was not alone in his thought that the buildings of Bath were without scale, that they lacked the true dignity of scale. Incidentally, Mr. Ball spoke of the degrading of the order in the Circus, that it was triple, and used with accompanying small parts. But, as would be seen in the Colosseum, the Romans themselves were not averse to doing somewhat similar things. Was not the true question of scale explained by the desire of the designers to conform to the surroundings of the place? The city was bounded on the south side by Beechen Cliff, and on the north side by Lansdown; and it was only up the southern slopes of Lansdown that the city could develop to any great extent. It was true it might have developed east and west, but had it done so it would have been at the expense of severance from the city itself; and, as Mr. Ball truly pointed out, this was an age when the civic life appealed more

than anything to those who lived in it. Of the fine scale in the laying out of the streets and squares there was ample evidence. Queen Square, for instance, was 300 feet from house to house. North Parade had a footway of fifteen feet, and a total width of fifty feet. South Parade had a footway of thirty-two feet, and a total width of seventy feet. The Crescent had a total width of fifty-two feet, irrespective of the fine lawn in front of it. The extraordinary thing was that as the century progressed the scale became bigger and bigger, until in Pulteney Street and in the estate on the other side of the river the streets were laid out on the most enormous scale, following on Robert Adam's designs, which were to be found in the Soane Museum. Pulteney Street measured 100 feet from house to house, and eighty feet from pavement to pavement—the width of Regent Street—and it was 1100 feet long. The scale was so immense that by the time one reached Sydney Place, unless one had a plan before one, it was impossible to discover what the meaning of the builders was. To have overloaded Bath with buildings on a large scale, however, would have given to it an air of depression. In fact, Bath must not be judged by other places. It was a small place without possibility of great development, and it had its environment; and to that environment the eighteenth-century builders did remarkable justice.

MR. L. MARCH PHILLIPS, in seconding the vote of thanks, said he had never heard a lecture which struck him as being more in accordance with the needs of this age than the one they had just listened to. Though he felt diffident in raising them, there were one or two points on which he was not fully in accord with the views put forward by Mr. Ball. Mr. Ball had said that the Roman Renaissance was the ideal which inspired Bath; and he spoke of the city of the eighteenth century by which the spirit of Roman decorum was revived. It seemed to him that the Renaissance in Europe was composed all along of two streams or threads. There was the Roman Renaissance, and also the Greek Renaissance with it; and very often in Italy, and in France, and in this country in the eighteenth century there occurred forms of classical Renaissance which were not Roman at all, which Romans would not have sympathised with, for they were purely Greek in feeling. There was, he thought, a process of sifting going on all through the Renaissance—sometimes Greek elements prevailing, sometimes Roman elements. Some architects were pledged to one, and some to the other. One would not hesitate, perhaps, to say that Michael Angelo himself, "great barbarian" as he was, was Roman, but that Bramante was Greek. Again one would say that Wren was Roman, and that Adam was Greek. All through Georgian work it seemed to him that there was a notable restraint and consciousness of the value of

smooth surfaces. This could be seen not only in architecture, but in old silver work, in old Sheffield work, in Sheraton sideboards, and so on. In these were apparent artistic ideals which were not Roman, and which depended on a restraint which the Romans had not much sympathy with. He thought that the share which Greece had in the Renaissance ought to be distinguished from the share which Rome had. But apart from such points of criticism, what he felt about the lecture was that it made the subject so humanly interesting. He wished that lectures and writings of this kind could be distributed among the ordinary public; architecture would then become what it ought to be, a humanly fascinating subject. They must all feel that architecture at present was, to a grave extent, cut off from life; and this meant not only the loss to life of a subject of extraordinary interest vividly interpretative of past nations and past races, but also it meant the loss of an ideal and an incentive to the working classes of the people. The President had referred to architecture as the Mistress Art. But it was something more than that, it was the Mistress Industry, for it combined and centred in itself a vast share of the industry of the country. If they separated architecture from life, they would have a craftsmanship and an artisanship which were more or less mechanical and wanting in dignity, and wanting also in happiness and a consciousness of their own worth. If, on the other hand, they united architecture again with life, they would dignify life again, and dignify labour as well. That, he thought, was the need of architecture, to be reunited to life, and they were tending in that direction, but in order that they might do so successfully it was necessary that the whole subject of architecture should be suffused and penetrated with the kind of ideas which Mr. Ball had put forward in his lecture. They must regard architecture as the expression of the individuality of past races, Roman, Greek, and others, because if they could get to think of architecture as the expression of the life of past people, they would then be able, and would have the wish, to make it the expression of their own lives also.

Mr. W. R. LETHABY [F.] said he should like to express his great pleasure and delight at Mr. Ball's excellent paper. It was an extremely able paper, one from which he would not lightly differ,—and therefore he would not differ from it at all. Bath was a wonderful city, perhaps the only city in England that had any architectural weight. What struck him during the delightful week he had spent there early in the year was the fear that it might be a little bit running down. He wondered whether they sufficiently valued Bath as a national asset. We had so many things that were too good for us; we could not live up to them. Here in London the best things were thrown away. Euston Station, for instance; it was so good, in its way, that

we did not know how to make use of it. The Central Hall was almost a waste place, the work was done in shanties. The same kind of fear struck him about Bath. And what he should like to suggest—though he feared these wild suggestions were not of any use—was whether it was possible to set about doing something towards a better appreciation and maintenance of Bath. It seemed to him to be a place that cried aloud for some national recognition; it was a place which might be made a Western University town. Think of planting a university at Bristol when Bath was close by! He wondered what the Greeks would have thought of it. He himself would as soon think of planting a university in Wolverhampton. The wonderful buildings of Bath seemed to be ready for something of the sort. Prior Park was one of the most astounding things in England. It was a great monument, and he was shocked to see how it individually was getting shabby. One scarcely knew what use to make of it; it was too big for us, too fine; but if some cry could go out for help, would it not be possible to get an effort made for its preservation? Some Agricultural College, or something of that kind, for the West of England might be possible. There must surely come a time when some sort of decentralisation would take place. He hoped, if that did occur, that Bath would have its chance before its beauty had passed away.

Mr. GEORGE HUBBARD, F.S.A. [F.], said that Mr. Ball's paper had no doubt opened up a good many avenues. He (the speaker) was inclined to think that architecture did not influence their lives quite as much as they imagined. It seemed to him that every age had its own particular architecture, and that architecture did truly express the feeling or the culture of that particular period. If that were so, it was the life and culture of the period which influenced the architecture, rather than the architecture influencing the life. Take Greek architecture, which had been referred to as being a standard of perfection; it was, he imagined, the standard of perfection only in so far as it absolutely and accurately represented the culture of the period. If the culture were altered, the architecture must be altered accordingly. We of the present day were not a particularly cultured lot; we were not as sincere as we might be, and, as a consequence, our architecture was not as perfect as it otherwise would be. Bad as our architecture was to-day, he believed it did really represent very correctly our unfortunate low standard of civilisation! No doubt if we could go back to those pristine ages when Bath was built, we should find ourselves living up to a higher standard than any of us attempted to live up to to-day. If architecture be taken in its broad sense as being an expression of culture, Gothic architecture was an expression of faith. When faith was strongest in the country, Gothic archi-

ture was in its highest form. But when the faith of the country flagged, Gothic architecture failed. To that extent, he found himself a little at variance with Mr. Ball, simply on the point that architecture did express the civilisation of the country. Architecture did not elevate us, but we elevated architecture when we attained to any higher standard of thought, culture, or scholarship.

THE PRESIDENT said that in the few remarks he had to offer he should be inclined to work backwards, beginning with the last speaker, Mr. Hubbard, who he thought hit the nail on the head when he said our architecture represented what we were worth. He was afraid that was the case, yet he did not feel so despondent about it as Mr. Hubbard seemed to be. The condition of modern architecture was not wholly bad, he thought, for there were distinct signs of progress and vitality about it. Mr. March Philipps had made some interesting remarks, but he (the speaker) could not entirely follow his criticism. Mr. Philipps had said that throughout the Renaissance there was a stream of Roman Renaissance and a stream of Greek; but technically the Greek Revival had only occurred within the last hundred years. What, he thought, Mr. Philipps really meant was, that some architects went for the Roman manner, and others aimed at the refinements and subtleties of architecture. But that was not so much the difference between Greek and Roman, as one which would always hold and prevail amongst artists; some men stopped at the big, bold effect, while others were not content with that, but were fastidious and severe on themselves. Mr. Mowbray Green, as they should expect from him, made a very spirited and eloquent defence of Bath, and stood up for the city on which he had written so well in his charming book. And he pointed out one or two matters in Mr. Ball's paper on which he (the speaker) was rather inclined to agree with him. He would deal with that presently, but he must first say how delighted he had been with Mr. Ball's paper. After all the dry-as-dust text-books they had to wrestle with, it was very refreshing to find a lecturer coming among them and trying to penetrate into the inner meaning of architecture, because that was what Mr. Ball had attempted. Those among them who had endeavoured to put into terms their feelings and their enthusiasms about great buildings knew how difficult it was; they were brought up short at once if they tried to convey to others their impressions with regard to these buildings. He thought Mr. Ball had done this in a most delightful manner. Still, he would venture to make one or two criticisms on what Mr. Ball had said. In regard to Roman architecture, he thought Mr. Ball took a sound histori-

cal view, and pointed out to them what he (the speaker) was glad to see was being realised, that Roman architecture was very far from being a mere pastiche of Greek architecture. In some respects it was inferior, but in others it was finer; and we should never forget that Roman architecture was the foundation of modern architecture, and the finest training for the young architect was still the study of the architecture of Rome. He did not think Mr. Ball had done justice to Bath as a great city and a great conception. They must recollect that at the time Ralph Allen set to work with Wood, no such thing had been done in England. The foresight and sagacity with which the town was laid out was something extraordinary; he certainly thought there was genius in it. Mr. Ball derived genius to Bath, but he might perhaps be inclined to extend that a little, because Bath was not only the best thing of the kind which had ever been done in England, but it was a city which could hold its own with great continental cities, with such a city as Nancy, which was a sort of *locus classicus* of civic design. We should not underrate what we have in our own country in that regard. With regard to the eighteenth century, he did not think Mr. Ball had done justice to all the undercurrents in that century. Mr. Ball seemed to regard it as a formal and prim affair; but it was not so historically, because deep in the eighteenth century were the roots of the Romantic movement, and we know that it ended in the tremendous catastrophe of 1790 and that cycle of events. So it was not sound in history always to describe the eighteenth century as a somewhat mechanical affair. There were passions deep down there waiting to find their way out, as there always would be in any civilised community. To return to Mr. Ball's admirable paper, it was one to which he should like to direct the attention of all their students, because the author had tried to penetrate through the screen of facts; but he felt sure that Mr. Ball would agree with him, that all students, before they could penetrate to these deep motives in the background, must know and study the facts. The lesson of Mr. Ball's paper was that above and beyond all these facts was a mysterious and elusive spirit which they should try to seize, if they were to understand the meaning of architecture.

The vote of thanks having been put to the meeting was carried by acclamation.

MR. BALL, in acknowledging the vote, said that as the President had let him off so lightly, the best defence he could make would be to say nothing; he certainly should not like to dispute any point of the kind with the President. In no paper of reasonable length could one get into all the nooks and corners of a period, and he admitted that there were lacunæ which should be filled in.

THE LIGHTING OF PICTURE GALLERIES AND MUSEUMS.

By S. HURST SEAGER [F.], Christchurch, N.Z.

THE lighting of picture galleries and museums is a problem which has been before the architectural profession since the early part of the nineteenth century. It is a problem of such universal public interest, that it is hard to realise that we appear to be as far from a true solution as in the earliest days. Anybody would very naturally think that if we require a gallery perfect in every way, we have only to go note-book in hand to the European centres of art, and copy exactly the form of gallery suited to our requirements. Let me at once state that we should be grievously disappointed. There is not a single European picture gallery that I am acquainted with that approaches perfection—some are atrociously bad, some are fairly lighted in parts, but not a single one is free from defects which should have been avoided. In 1907 and 1908 I went note-book in hand to all the principal British, French, Italian, and some of the German galleries, and am therefore in a position to support the statement made by Mr. A. W. Weissman, the architect to the City Museum, Amsterdam, in a paper read before the R.I.B.A. in 1907. He said: "Before designing my gallery, I determined to visit the European galleries, but I could not find a room which was entirely satisfactory. I therefore had to try for myself."

The question came prominently before the public as long ago as 1853. At that time it was proposed to enlarge or rebuild the English National Gallery. The Gallery had been built by Wilkin. It was completed in 1838, and the opinion expressed by a writer in that year, quoted in a leading article of the *Builder*, has been endorsed from time to time ever since by those who have been anxious to see our national collection worthily housed.

"In short," he writes, "judging from the profound deficiency evinced in the present National Gallery, and considering the distinguished names that were connected with the examination and approval of the designs for that building, it would be difficult indeed to imagine that either British statesmen or English architects have any enlarged or sound idea about the requirements of a National Gallery, beyond its mere name."

The article in *The Builder* concludes with these words:

"We sincerely hope that, when the matter comes before Parliament, men of all parties and political opinions will unite their endeavours to make such arrangements as may obtain for us a structure completely adapted for the purpose, and worthy of the age and country: not a building good enough, but the best possible; scientifically correct, structurally perfect, and architecturally magnificent."

This was written in 1853, in the early days of picture galleries and museums. It was then seventeen years since the National Gallery had been opened, and only twenty years since the opening of the first public picture gallery—the Alt Pinacothek at Munich. In this year Ruskin wrote to the *Times* as follows:—

"We are about to build a new National Gallery: may it not be arranged so that the pictures we place therein may at once be safe and visible?"

"I know that this has never yet been done in any gallery in Europe, for the European public have never yet reflected that a picture which was worth buying was also worth seeing. Some time or other they will assuredly awake to the perception of this wonderful truth, and it would be some credit to our English common sense if we were the first to act upon it."

"I say that a picture which is worth buying is also worth seeing—that is, worth so much room of ground and wall as shall enable us to see it to the best advantage. It is not commonly so understood. Nations, like individuals, buy their pictures in mere ostentation, and are content, so that their possessions are acknowledged, that they should be hung in any dark or out-of-the-way corners which their frames will fit. Or, at best, the popular idea of a National Gallery is that of a magnificent palace, whose walls must be decorated with coloured panels, every one of which shall cost £1,000, and be discernible, through a telescope, for the work of a mighty hand. I have no doubt that in a few years more there will be a change of feeling in this matter, and that men will begin to perceive, what is indeed the truth, that every noble picture is a manuscript book, of which only one copy exists, or ever can exist; that a National Gallery is a great library, of which the books must be read upon their shelves; that every manuscript ought, therefore, to be placed where it can be read most easily; and that the style of the architecture and the effect of the saloons are matters of no importance whatsoever, but that our solicitude ought to begin and end in the two imperative requirements—that every picture in the gallery should be perfectly seen and perfectly safe; that none should be thrust up, or down, or aside, to make room for more important ones; that all should be in a good light, all on a level with the eye, and all secure from damp, cold, impurity of atmosphere, and every other avoidable cause of deterioration."

Modern examples show that it is as necessary to impress these views to-day as it was at the time they were written. Unfortunately they have hitherto had but little weight with those entrusted with the design and care of our galleries and museums, for although our National Gallery was proved so deficient, nothing was done, and the original portion of the building remains to-day with all the defects complained of fifty-eight years ago. In 1876, E. M. Barry added a new wing which followed the old method of top-lighting, but with

the addition of an inner ceiling light. In these rooms such irritating reflections were found to be produced from a white marble border placed round the floor, that the border had to be removed.

Within the last year, further new rooms have been added. It would have been thought that with the experience gained from failures in the past and the advanced knowledge of the laws of light, we should at last have had a gallery quite free from defects—that the editorial plea of 1853 for a building “scientifically correct, structurally perfect, and architecturally magnificent,” would be granted. It was not to be, for so scientifically incorrect are they, that they were no sooner opened to the public than a wail of lamentation went up from all classes, expressed very forcibly and freely in the *Times* and other papers. It was stated in various terms that the method of lighting was so bad that it was impossible to view the pictures with any degree of pleasure. The reflections were in every case so pronounced that the picture itself could not be properly seen from any point of view. All the pictures in the National Gallery are glazed, but I hope to show that it is possible to so arrange the lighting, that no inconvenience whatever is experienced from the reflecting surface. It is possible for pictures to be seen perfectly when glazed if only the laws of light are properly understood and acted upon. That they should not have been in such a work is remarkable, especially in view of the fact that the rooms were built to contain the great masterpieces of the world, for which enormous prices were paid.

It may be thought that this is an isolated instance among modern buildings—unfortunately it is not. The National Portrait Gallery, erected in recent years for the especial purpose of exhibiting the interesting collection of portraits of England's eminent men and women, is a lamentable failure. Some of the galleries are so dark that it is with difficulty one can see at all. Some are side-lighted in such a way that the reflections are overpowering. I spent some time with the attendants manipulating the window blinds in the endeavour to arrange them so that the pictures could be properly seen. We found it impossible.

The most recent English Museum building is the new portion of the Victoria and Albert Museum. We have only to look at a photograph of one of the galleries, published in the *Architectural Review* of July 1909, to see that again precedent has been followed instead of principles, with the result that Raphael's celebrated cartoons, or other glazed exhibits on the walls, have become in the greater part, as can be easily seen in the photograph, merely reflections of the architectural features of the interior. Here, as in all other cases, the defect arises from allowing a flood of light to fall from the centre of the ceiling so that the spectators are much more brilliantly lighted than the pictures. This was the principle classicists consider was adopted for the Parthenon. It was the principle

adopted in the first picture gallery at Munich, and it has been thoughtlessly followed ever since. Thoughtlessly, for it can at once be seen that if the spectators are in a bright light and the reflecting surface of the glazed pictures in a subdued one, it is impossible to prevent painful reflections occurring. In addition to the galleries I have personally studied, I have examined the plans of very many others, and find this mistaken method is almost without exception followed.

Attention has always been directed to the size and form of the central ceiling light, and many methods have been claimed to be the best for ascertaining the exact relation the opening should bear to the size of the room. As the principle of having a top or ceiling lights is wrong, the rooms are, of course, all defective, and vary only in degree. Captain Fowke, who designed the galleries at the South Kensington Museum to contain the celebrated Sheepshanks collection, is perhaps responsible largely for the continued copying of bad precedents, for in the *Builder* of 1853 he proposes to consider the question scientifically, and to show by diagrams that the ceiling light he proposed would have such proportions and such relations to the picture surfaces, that the pictures would be well lighted and quite free from reflections. His diagrams show that he has only taken into consideration the reflections of the ceiling light itself in the picture, quite ignoring the fact that if a flood of light falls into the centre of the room, all objects illuminated there by the top light become themselves sources, not of direct, but of reflected light, and it is the reflections of these objects that cause the greatest trouble. Every picture gallery gives instances of this. It must be bad indeed if the reflected image of the skylight is seen in the picture, but there is not a single gallery I am acquainted with, whether by personal inspection or by illustration, which is free from reflected images of the spectators and all objects within the well lighted area. How bad reflections can be in buildings specially designed as galleries or museums is shown by a photo taken in the Museum at Cairo. It is in a top-lighted room with shallow glass cases lining the walls. It was absolutely impossible to see the exhibits. I tried in every way to get a photo free from reflections, but finally took one in which the reflected images—including the image of the photographer and his camera—quite overpower the contents of the cases (fig. 1). Yet of such reflections as these Captain Fowke takes no heed, and consequently his gallery, purporting to be on exact scientific principles, is as unscientific as those which preceded and those which follow. In my examinations of galleries I used a photometer—a meter for taking the exact exposure for negatives by noting the length of time a piece of sensitised paper takes to reach a certain depth of colour. I found by this means that in every gallery having central ceiling lights or roof light in the slopes of the roof, whatever their proportion and

however they varied in detail, all illuminated the central portion of the room much better than the walls on which the pictures were hung.*

Not only are irritating reflections thus created, but in all cases the pictures appear to be much less lighted than they are by reason of the contrast between the strong light in which the spectator stands and the subdued light on the walls. An extreme illustration of this effect is seen in standing outside a building and looking into door or window openings—the interior, by contrast, appears to be quite dark; on entering of course it is found to be an illusion, for the reason given under Law 4, that the interior is in fact well lighted. In many cases of bad lighting this contrast between the well-

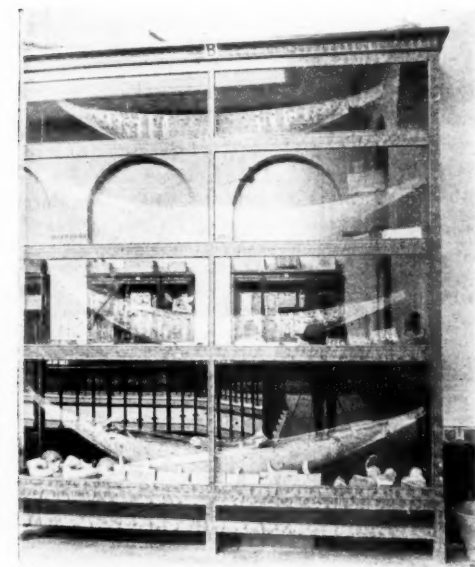


FIG. 1.

lighted floor and the ill-lighted walls is removed by subduing and diffusing the light from the skylights by means of inner translucent ceiling lights—that is with ground glass which scatters the rays of light in all directions. This method is adopted, as I have said, in some of the rooms of the National Gallery and in Sydney, and it can at once be seen that this is not a desirable expedient. It does not get rid of the original evil, for the reflections are still there, although in a modified form, and, while the pictures can be better seen than before, they are in fact not so well lighted, and the whole gallery is gloomy and depressing.

Not only do the large majority of pictures suffer by reason of their ineffective lighting, but many

* The sensitised paper of course gives the actinic value of the light, but where white glass is used the actinic value and the visual value would correspond.

suffer considerably by being placed in positions for which they were never intended. It is, we must remember, only of late years that pictures have been painted in the hope that they will be bought either for private collections or for galleries. The great masterpieces were painted under commission to fill some particular place. The conditions of lighting were known beforehand, and the picture painted to suit them.

It is the striving for a brilliantly lighted room from the architect's point of view, apart from the consideration of the special purpose to which the building is to be applied, that has led to the retention of the usual forms of ceiling or skylight, and the total disregard of the special arrangements needed for the effective lighting of the pictures. An excellent illustration of these two points of view is afforded by two notices of the new rooms at the National Gallery in the April 1911 number of the *Architectural Review*. The architectural critic, in describing the new work, says that the rooms "are brilliantly lighted," while an editorial note in the same issue has to acknowledge, apparently reluctantly, that the complaints made of ill-arranged lighting, and consequent reflections, are just, and says "that although it is not true, as some correspondents stated, that it is absolutely impossible to see the pictures at all, still the reflections do exist to a most annoying extent."

On the one side we have the architects rejoicing that a brilliantly lighted room has been erected, on the other side the painters and picture lovers complaining that this brilliantly lighted architectural erection is in fact an architectonic utility, in that it quite fails in the very purpose for which alone it was erected "the excellence of every art must consist in the complete accomplishment of its purpose," is the legend cut in the entrance archway of the new Victoria and Albert Museum which leads to the gallery already referred to. In this connection Sir Lawrence Alma-Tadema may be quoted. In his speech at the reading of Mr. Weissman's paper, he said: "The best result is obtained, I believe, where the glass is in the sides of the ceiling, lighting the opposite walls only. . . . With top lighting, the floor is lighted, the pictures themselves are not."

This is the principle of lighting Mr. Fergusson believes was adopted for the Parthenon—a belief very widely supported. It is a more rational method, and is one that has been adopted in several galleries, certainly with only moderate success. Perfect success cannot be achieved by this principle, but failure has occurred because, as I hope to show, the methods adopted in carrying out the principle indicate that the principle was not clearly understood. The plea for this method of lighting was made in 1907, yet in spite of this we have in 1912 the new galleries designed on the old principle, leading to the same unfortunate result.

I have said enough to show clearly that all are agreed that the usual type of picture gallery,

whether lantern-lighted, skylighted, or side-lighted, is either a partial or total failure as such, and that if we want to possess a picture gallery which shall be truly worthy of the name, we must disregard precedent entirely, and be guided solely by the principles which should govern the problem. Fortunately, the principles are few and simple, so few and so simple that it is astonishing they should ever have been disregarded.

1. *The angle of reflection of a ray of light is equal*

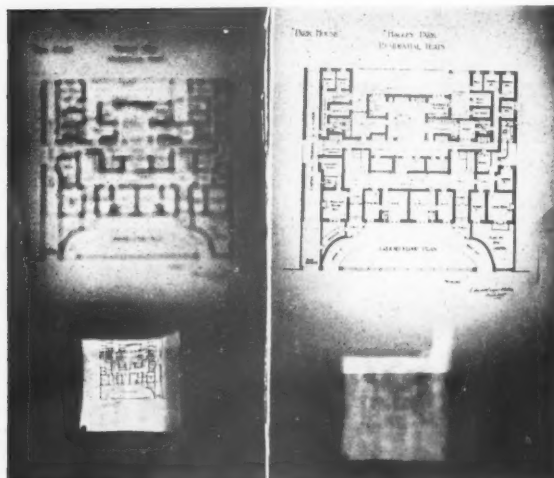


FIG. 2.

to the angle of incidence, that is to say that the angle at which a ray meets a reflecting surface will be the angle at which it leaves it. If, therefore, those rays of light entering from the skylight fall on a glazed picture and make with its surface an angle of say 45° , the reflected ray from the picture to the floor will also have an angle of 45° , and so for any other angle. If we stand in such a way that these reflected rays fall upon the eye, we shall see, not the picture, but a reflected image of the skylight.

In some galleries this occurs with pictures hung high up on the side wall, and is of frequent occurrence in the end walls even when the pictures are hung on "the line" or just above it. It occurs in the end walls of nearly all oblong galleries, as in our own galleries.

I have spoken of "painful reflections" advisedly, for I am convinced that the reason people get so extremely tired and suffer from headaches after but a brief study of pictures or exhibits is on account of the straining of the muscles of the eye when looking at pictures or show-cases which reflect images of illuminated objects. We must all have been conscious of the strain, but we perhaps have not realised that it does not result merely from the confusion of the picture by the superimposing of images by reflection on the same focal plane, but

by the superimposing of a reflected image in a different focal plane from that of the picture. An experiment has made this perfectly clear. Fig. 2 shows photos taken of two similar plans, one placed within glass and the other placed on a wall behind the camera, and illuminated so that its reflection is clearly seen in the reflecting dark surface of the glass. In the first photo the camera was focussed on the plan within the glass, which is seen to be quite sharp, while the reflected plan above it is merely a blur. In the second photo the camera was focussed on the reflected plan, which is now sharp (but distorted on account of the unevenness of the glass) while the glass-covered plan is considerably blurred. Thus it is proved that the reflection is far within the picture, it is in fact as far within it as the illuminated object is in front of it, and the size of the reflected object is in direct inverse proportion to the distance of the object from the picture. The reflection and the picture cannot therefore be clearly seen at the same moment, and there is a continual struggle and strain upon the eye in the endeavour to rivet the focus on the picture. It may be said that the eye is continually adapting itself to varying focal lengths in viewing the objects around us. This is true, and it can do so without strain because in no instance is one focal length superimposed upon another, as it is in the case of pictures with reflecting surfaces. The exact position and size of the reflection in the picture can at once be

determined by means of a diagram (fig. 3) showing a representation of the size and position of the illuminated object within or beyond the picture. Lines drawn from the extremities of the representation to the position of the eye of the spectator will, if they pass through the picture, show the size and position of the reflected object in it. This diagram is drawn on the assumption that the picture or reflecting surface lies in a vertical plane, and the position of the representation is found by drawing lines perpendicular to it through the object and setting off the distance of the object

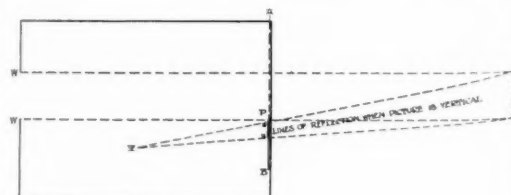


FIG. 3.

WW WINDOW OR ILLUMINATED OBJECT
AS PLANE OF PICTURE
W' REPRESENTATION OF WINDOW WITHIN THE PICTURE (VIRTUAL OBJECT)
SP THE PICTURE OR REFLECTING SURFACE
E THE EYE
RR REFLECTION IN PICTURE

from it. If the plane of the picture is not vertical, then the position of the representation will be found in exactly the same way—that is, by drawing lines from the object perpendicular to the plane of the picture, whatever the angle of the plane may be, as shown in the diagrams fig. 4. From this it

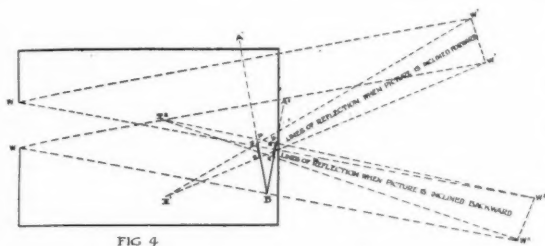


FIG 4

will be seen that if a picture is slightly tilted back the reflections will only be seen if the spectator is raised above the normal height, and that if it is tilted forward only when below it. The exact point at which reflections will be seen are in each case accurately determined. It will be seen that by this system we can determine not only the position and size of reflections in any reflecting surface from any point of view, but we can also determine the required position of the lights, in order to prevent any reflections being seen from the point of view found to be most suitable for viewing the picture.

The lines drawn from the eye to the representation of the window must pass through the plane in which the picture lies either above or below, or in a side-lighted room at the side of the picture—never through it. (See fig. 7.)

2. *Any illuminated object becomes in itself a source of light, and its image is reflected, as above stated in Law 1, in proportion to the relative illumination of the object and the reflecting surface.* That is to say, if a glazed picture is very dimly lighted and any object in front of it well lighted, then the reflected image will overpower the picture. If, on the other hand, the picture is well lighted and the objects in front of it dimly lighted, then the reflection, although there, will be scarcely apparent—so weak, in fact, that the enjoyment of the picture will not be interfered with. This can be easily proved by all in the following way:—First, place a glazed picture close to one side of a window and at right angles to it, and then stand close to the other side of the window. Both picture and spectator will in this way be equally illuminated, and the picture and reflected image will be striving for mastery. Second, move the picture back into the shade of the wall, and let the spectator remain illuminated as in the first case, and it will be seen that the reflected image is powerfully dominant. Third, now bring the picture into the first position, move back into the shade of the wall on the other side of the window, and it will

be seen that the reflected image has nearly, if not quite, disappeared.

As I have already stated, it is these reflected images of illuminated objects in a gallery which cause the greatest trouble, and yet it is these which have not hitherto been guarded against.

They are in nearly all galleries most annoying, for if you approach the picture from the left at any angle, it reflects the right wall. If you approach it on a line at right angles—that is, directly in front of it—the wall behind you and you yourself are reflected; while if you view the picture at any angle from the right, the left wall is reflected, together, in each case, with all illuminated objects.

Now this could not possibly occur—as proved by our experiment—if in every case care were taken for the picture to be illuminated much more brightly than the spectators or objects in the room. This sounds so simple that it is, I can readily believe, extremely hard to realise that this law has not been at once acted upon by any one when designing a gallery for the exhibition of pictures.

I have pointed out that with the usual top light the floor is more brightly lighted than the walls. It thus becomes a source of reflected light, and its reflected image will be seen in all glazed pictures on “the line.”

A polished or light coloured floor capable of reflecting light—as for instance the white marble used in the floors of the additions to the National Gallery—should for this reason be avoided, and the floor covered with some dark light-absorbing material.

In the experiment made with the picture at the side of the window, it will be noted that the reflected image is always more powerful in the dark parts of the picture, and will often be very pronounced there, while in the light parts it may almost disappear, and if it has a white mount it may in that quite disappear. This leads us therefore to the statement of another law, viz. :—

3. *That the darker in tone the reflecting surface, the more powerful will be the reflected image.* From this we learn that the darker the picture the greater must be the contrast between the lighting of the picture and the lighting of the room. Dark pictures, to be effectively seen, must be in the highest possible light, while light-tone pictures may be placed in a subdued light with less risk from reflected images. Therefore it is possible to minimise the ill effects of an imperfectly lighted room by acting on this rule when hanging the picture.

4. *Light diminishes inversely as the square of the distance from its source.* The same law applies to heat, and an illustration of the effect of a fire will perhaps be more convincing. Close to a fire you know the heat is intense enough to scorch; four feet away, the square of the distance being sixteen, we get by our law only one sixteenth of

the heat of the fire; at eight feet, the square being sixty-four, we only get one sixty-fourth of the heat, showing, of course, in passing, the wastefulness of our open-fire radiant heat system. I have taken this illustration because our susceptibility to heat is constant, and we can by our feelings readily appreciate the truth of the law. Fortunately for us, our eyes have a wonderful system by which the amount of light admitted is regulated. You know the iris contracts in a bright light and expands in a dull one, so that by this very beautiful arrangement the number of bright rays of light which would enter the eye is reduced, and the number of dull rays increased, so that whether we stand in a very bright light or a very dull one a normal effect is produced. You will remember that if the contrast is great—as it is if you suddenly step from bright sunlight into a dark room—nothing can be seen till the iris has accommodated itself to the altered circumstances, and the same is true if we pass quickly from a dark room into sunlight. This plan of Nature's for keeping the amount of light which enters the eye as far as possible constant, makes it difficult for us to realise the truth of this law as applied to light, but those of us who have photographed plans or large drawings in a room with side light know how quickly the light diminishes. We find that if the plan is even only two feet wide the value of the light on the one side is so different from that on the other that with a correct exposure for the central part, over-exposure will occur next the window and under-exposure on the side of the plan next the room. The camera has discovered that the law exists as stated.

This law has an important bearing upon the lighting of picture galleries, for it teaches us that the higher we make our top-lighted rooms, the duller, the more gloomy the rooms will be. We arrive in this way—as at the Pinacothek at Munich, which is forty-five feet high—at the same effect as we have seen to be produced by shutting off the rays from the skylight by translucent inner glass. But this law has its most important bearing upon side-lighted rooms. In a top-lighted room the value of the light is the same in any one horizontal plane, so that the pictures along that plane are all either brightly or dimly lighted. Except, therefore, in the case of very large pictures occupying a considerable part of the vertical wall surface, the pictures will be fairly evenly lighted. In a side-lighted room, on the contrary, the light is equal in vertical planes and diminishes rapidly along any horizontal line on the side walls, but will be evenly dull or evenly bright on the wall facing the window in proportion to the distance between them.

Side-lighted rooms, as usually designed, are extremely unsatisfactory, and will be as long as architects consider the position and proportion of the windows in relation to the exterior instead of considering them solely in relation to the lighting of pictures. The idea of classical proportion and pleasing fenestration in accord with antique standards must be abandoned, and the problem solved from the standpoint of scientific correctness demanded by our early Victorian writer. He had a true idea of the importance of the elements for complete success in the designing of galleries, for you remember he placed scientific correctness first after this "structural perfection," and only after the requirements of these two were satisfied did he ask for "architectural magnificence." In most of the buildings containing side-lighted rooms the sequence of thought has been reversed. Windows of the usual form have been placed low down in the wall, with the result that on the back wall the reflections are extreme, and it is only by reason of the spectator blocking the direct rays of light and thus placing the pictures in shadow, that they can be seen at all. The back wall forms, in fact, as bad a position for the exhibition of pictures as could be devised. The side walls, if not too long, are well lighted for small pictures. Those near the window are brightly lighted, but none are free from reflections, for here, as in the case of top-lighted rooms, the spectators are standing in the best-illuminated space.

5. *Rays of light, if unimpeded, radiate from their source equally in all directions*, so that if we imagine a ball of light in the centre of a sphere, the whole of the inner surface of the sphere will be equally lighted, and as the diameter of the sphere is increased so will the light falling on its surface

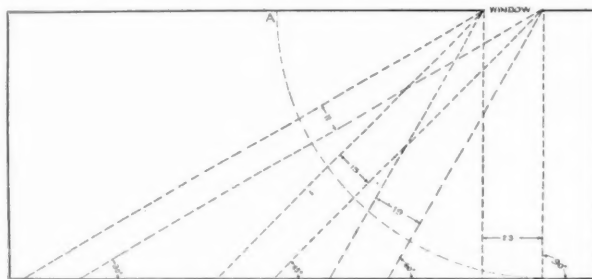


FIG. 5
DIAGRAM SHOWING RELATIVE VALUE
OF BEAMS OF LIGHT FALLING ON AN OPPOSITE
FLOOR OR WALL.

be diminished. If the light is on one side of a rectangular room, the lighting of the walls will be uneven because different parts of their surfaces lie in the planes of concentric circles of varying diameter (fig. 5).

In the case of daylight, this law holds good only within the angle made by the reveals of the open-

ings. That is to say, that if we cut a hole of any form either in the walls or ceiling of a room, the limit of the rays of light passing through it will extend only up to a line drawn from the outer edge of one side to the inner edge of the other. The space beyond this will be in shadow, and will be lighted only by reflected light from the surfaces of the floor and ceiling. This can easily be proved at any window opening. The same law will be found to hold good whatever angle the opening makes with the horizon. So that given any opening in walls, ceiling or roof, we can at once determine what portion of the room will be lighted by direct rays of light and what by reflected light, and we should not make the mistake so often seen of skylights put in in such a way that the walls on which the pictures are placed are wholly lighted by reflection.

6. *Dark colours absorb light while pale colours and polished surfaces reflect it.*—This law must be kept in mind in designing picture galleries, for we must aim at having no reflected lights to interfere with the direct lighting of the picture. We must therefore have dark neutral colours on both walls and floors.

We have now enumerated the laws which must be understood and abided by if we are to solve satisfactorily the problem of designing picture galleries and museums. I have already stated partly the deductions to be drawn from these laws, but now let me summarise them before showing how they may be carried out in practice.

1. To avoid reflections in the pictures from the source of light, the angles made by the lines from the source of light to the picture must be greater or less than the angles made by lines drawn from the picture to the eye of the spectator when standing in the most suitable position for viewing the picture.

Note.—As this position will vary according to the size of the picture, it follows that the lighting suitable for large pictures requiring a distant point of view may be quite unsuitable for a small picture requiring a close point of view.

2. To avoid seeing in the pictures reflected images of spectators and objects in the room, the spectator and objects must be in a subdued reflected light, in marked contrast to the direct lighting which must fall on the pictures.

3. The darker the pictures the more brilliant must be the lighting upon them and the greater the contrast between the direct lighting of the pictures and the reflected lighting of the room.

4. In order to obtain a brilliant light on the pictures, the pictures must be as close to the source of light as the other conditions will permit, and the lighting must not be obscured by secondary ceiling lights or glazing.

5. The pictures must be within the space formed by lines passing through the inner and opposite outer edges of the light opening.

6. The rays of direct and reflected light which

fall on the walls and floors must be absorbed by dark colourings.

I have hitherto referred only to glazed pictures, because they form the crucial test as to whether or not the gallery is successfully lighted. It is true that unglazed pictures can be seen, and fairly well seen, even under conditions in which it would be impossible to see glazed pictures. But although they can thus be seen without the annoyance of reflected images, still they can be seen to far greater advantage under the conditions absolutely imperative for glazed pictures. For although no reflected images would be seen, light would be reflected from the surface of the pictures, sometimes appearing as bright patches of light and sometimes as spots of bright light in the uneven surfaces of the brush-work. In both cases false effects are produced which rob the picture of its true value. I do not therefore agree with the writer in the *Architectural Review* who, with reference to the new rooms of the National Gallery, said that it is only when glazed pictures are to be exhibited that it is necessary to take special precautions in lighting; that if the pictures in the National Gallery had not been glazed, no complaints would have been heard. Certainly no complaints would have been heard, but it is a poor ideal in this or any other sphere of human activity which demands only that a work shall be no worse than what we are accustomed to. Such was not the ideal of the writer I have quoted, who asks that we may obtain "not a building good enough, but the best possible."

Let us now see what attempts have been made to reach the ideal of perfect lighting, and then what form our galleries should have in order to fulfil the requirements laid down.

At Munich I was interested to see the principle of shading the spectators adopted. A ceiling was formed over the central part of the gallery, leaving a space of about eight or nine feet all round to allow the light from the skylights to fall on the pictures. The arrangement, it was said, was not new, and it is stated in the leader already referred to "that it was applied in a room in Newman Street, Oxford Street, London, built for the exhibition of West's pictures; and Messrs. Papworth, in their work, *Museums, Libraries, and Picture Galleries*" (I have not had an opportunity of seeing it), "describe a gallery built for Mr. Allnutt, of Clapham Common, between 1829 and 1833, where the lighting is on the same principle. Sir Charles Eastlake, who considers that the window or source of light by which a picture is seen, and the picture itself, ought not both to come within the range of vision at the same time, thought very highly of such an arrangement." Although the pictures could be well seen at Munich, the effect was not as successful as it should be, for two reasons, first because, the skylights being high, only a very diminished light fell on the pictures, and, secondly, the gallery was too wide, thus leaving too large a space in deep shadow. Still, the experi-

ment was very interesting and contains the germ which, if properly developed, would lead to success. If later designers had only realised this, instead of abandoning the idea in favour of the brilliantly top-lighted rooms, we should long ago have had examples which might well be followed.

The gallery in which the greatest amount of success has been reached for individual pictures is the Doré Gallery in London. It is, of course, only a small place, not larger than many artists' studios, but by means of dark floor covering and arrangement of dark divisional and wall curtains, each picture is separately seen, splendidly lighted by direct light from a hidden source. You can see no windows, no skylights, but the most brilliant light is that falling on the pictures. This is as it should be. There is, it is true, no structural perfection or architectural magnificence, but the lighting is certainly scientifically correct, and we cannot too often insist upon this as being the first consideration. These are the only two instances I know of where successful departure has been made from the usual type. An American Commission lately travelled over Europe to study its picture galleries with a view to the erection of one in America. They came to the conclusion, I believe, that an Italian palace makes the most satisfactory gallery. That there is a delightful charm about these old palaces I readily admit, but they are very far from perfect as picture galleries. They were designed as homes for the Italian princes and nobles, and as such were adorned with pictures some well, some ill lighted. In this they are no worse than many of the specially designed galleries, so that it is easy to believe that a verdict might be given in their favour.

Passing from a large modern gallery, with all the pictures spread out along "the line" and looking woefully insignificant in relation to the size of the room, as in the City Museum, Amsterdam, it is unquestionably pleasant to turn to the suites of medium-sized and small rooms in which the pictures in Italy are placed, as, for instance, in the Uffizi and Pitti Palaces at Florence, the Barberini and Vatican at Rome. In all these so conscious are we that the palaces are only being used for their present purpose as a matter of expediency that the critical faculty lies dormant; we enjoy the pictures as well as the circumstances will permit us, and are thankful. The majority of pictures are well seen in strong side light. The gems of the collection are so arranged, being hinged to the wall on the side next the window, that they can be placed at any suitable angle. This is an excellent method of improving the lighting of the picture. A diagram (fig. 6) shows that if the picture is brought out to an angle of about 30° with the wall, it would receive about two thirds more light than when lying flat against it. Of course this is only an expedient for overcoming defective lighting, as also is the method of inclining the whole of the side walls of side-lighted rooms, as is seen in the

Gallery at Amsterdam and many other places. The pictures, it is true, are better lighted than when the walls are at right angle to the plane of the windows, but the arrangement is defective inasmuch as the back wall is still badly lighted, and none of the side pictures can be viewed without interfering with the view of other spectators. Angles are the most inconvenient places for seeing pictures, and by the small side-lighted room method we get a maximum of inconvenient positions.

Note.—Moreover, the space for viewing the picture free from the reflection is restricted to the space between the window and R. If the picture is flat against the wall the space is extended to R.

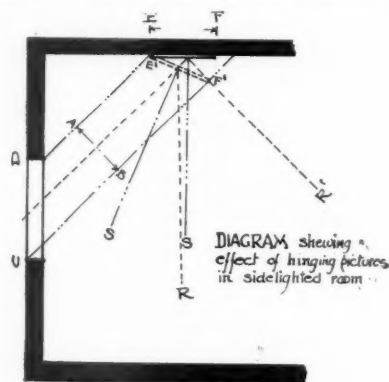


FIG. 6.—PLAN.

A method of lighting more scientific than the top ceiling light is that of the lantern light—that is, lighting by means of a row of vertical windows in each side of the central part of the roof, the roof covering of this central part being raised above the windows. In this way the light from each row of windows is thrown on to the opposite wall, with the result—if the angles have been properly studied—that the pictures are well lighted. This form of light can be seen in our own Exhibition Gallery, but here the fatal mistake has been made of glazing the central part of the roof also; a flood of light thus falls on the central part of the room, which is far better lighted than the walls, with the result that reflections are painfully dominant. The billiard room of the Canterbury Club, on the other hand, is lighted with a lantern light with a solid ceiling, the result being that the billiard tables, for which the room was designed, stand in the worst lighted part of the room, while the mediocre pictures which hang on the walls are excellently lighted. But this method, even when properly carried out, although an improvement on the top-lighting, is not entirely successful, for the central portion of the room is still too well lighted to prevent reflections, and the windows too far away from the pictures to light them brightly. For it must be remembered that it is the windows in

the right-hand side of the roof that by this method light the pictures on the left-hand wall, and *vice versa*. To be perfectly successful, therefore, the lighting must be so arranged that the windows on the right of the roof throw their fullest light on the pictures on the right wall, those on the left on the left wall. This can be effected by adopting what I have called the top side-light system. It may be carried out in various ways. I show one in which the width of the roof of the gallery is divided into three parts, the central part to have a flat or curved solid ceiling, while the side portions would be covered with a pitched roof with skylights in the inner slopes adjoining the central flat portion (diagram fig. 7).

This arrangement would allow the light to fall with full brilliancy on the outer walls, leaving the central portion in shadow. This central portion should therefore be formed as a wide corridor, and the outer portions be divided by partitions into wide bays. The partitions should extend to the roof of the bays so that the lighting in each bay may be independent. The ends of the partitions next the corridor would also be excellently lighted, and the pictures hung there could be well seen on passing along the corridor, as also could all the pictures on the outer walls, without entering the bays. By the division of the gallery into bays a large amount of extra well-lighted wall space is provided. The length of the bay would be determined by the limit imposed by the law of reflections. They may be narrower than this limit but not wider. Only one picture should be hung on the partition wall. If others were hung near the outer wall spectators would have to pass into the well-lighted area to see them, and reflections from illuminated objects would result. Moreover, spectators would thus interfere with the view of those seated. Pictures should never be crowded together, and this system provides double the amount of well lighted and suitable wall space than that provided by a rectangular room of the usual form. Pictures which in an ordinary room of equal area would have been placed frame to frame could here be displayed freely, and with vastly increased convenience and artistic effect. Seats should be placed just within the bays at the correct distance from the pictures so that those wishing to study the pictures carefully would, while seated, not be interfered with by those wishing to get merely a general survey of the gallery. The great fault in all galleries now is that the seats are placed in the centre and the corridor or thoroughfare is between the pictures and the seats. The arrangements here sketched, while being strictly in accord with the principles of lighting we have laid down, may be made struc-

rally perfect, and as architecturally magnificent as the funds will permit or the taste and skill of the designer dictate.

The depth of the bay from the corridor to the wall should be about 16 feet, so that the correct position for the seats may be within it. It will be

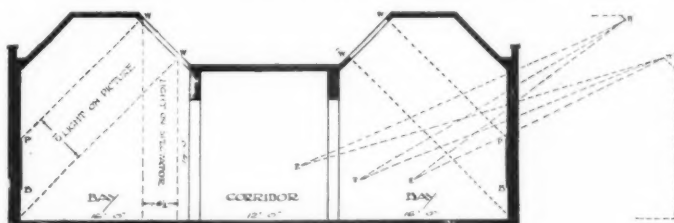
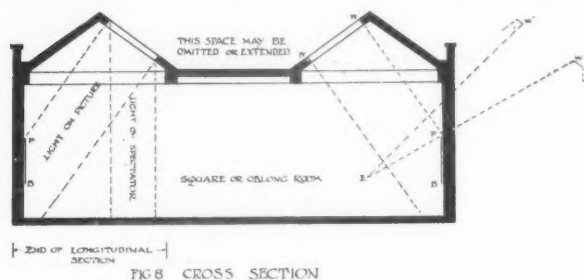


FIG. 7. CROSS SECTION
DIAGRAM TOP SIDE-LIGHTED GALLERIES

found that 30° is the most suitable angle of vision for viewing a picture, and this gives about double the width of the picture as the best distance to see it from. Few pictures are more than 8 feet wide, so that a depth of 16 feet would suit the majority of the largest pictures. For smaller pictures the seats would be brought proportionately nearer or the depth of the bay diminished, and for larger pictures the depth of the bay would be increased. The very great advantage of an undisturbed view of the pictures from the seats must appeal to all, while the possibility of seeing all the pictures without blocking the view of those who are seated makes this arrangement one that should be followed in all galleries. It will be seen from the diagram of the section, fig. 7, that the light falling on the spectator when seated within the bay is four-tenths less than the light falling on the pictures, so that reflections of the spectators and illuminated objects would be impossible; and it will be seen that as the spectator approaches the picture into the well-lighted area for a close examination of its parts only his back becomes illuminated, and reflections even then cannot occur. In a gallery of the usual type, as seen in the sections given, it is the face of the spectator that is always more strongly illuminated than the picture.

I have said that this system of top side-lighting may be carried out in various ways. It is applicable to all usual forms of rooms. There are many instances in which a gallery for meetings &c. is the first consideration and the exhibition of pictures a secondary one. Hitherto the pictures have been the only sufferers from this dual purpose. There is no need for sacrifice for either purpose. A large assembly room can be brilliantly lighted, and yet be made quite suitable for pictures, as shown by my diagram, fig. 8. There is no need that there should be a violent contrast between the brilliantly lighted walls and the central part of the room. It need never be gloomy. All that must be

demand is that the brightest light shall fall on the walls. The diminished direct light from the top side-light, and the reflected light from the



wall surfaces, will ensure a brilliancy of effect throughout. I designed a Municipal Assembly Hall on this principle some years ago.

It is of course desirable and generally demanded that museums and picture-galleries shall be used for no other purpose than the display of exhibits or pictures, and in that case the arrangement I have suggested is, I think, the best. It is as suitable for museums as for picture-galleries, for the laws which apply to glazed pictures apply with equal force to glazed show-cases. Here again, if the principles are understood, all the cases of exhibits can be placed in relation to the light in such a way that there shall be no chance of their being converted into distracting mirrors. In our own museum and picture-gallery there are, I regret to say, examples of every kind of defective lighting, and I am not sure that we can regard the knowledge that they are no worse than similar institutions elsewhere as any consolation. I have referred to the defects of European galleries, and the museums are in nearly all cases equally bad. The most annoying effect of all is perhaps to be seen when horizontal glass specimen-cases are placed in a strongly top-lighted room. As long ago as 1883 I remember trying to study the minerals in such cases in the Natural History Museum of London. I met with but little success in this, but gained a deeply impressed knowledge of the details of the skylight. It is a magnificent building for which I have always had the greatest admiration, but I thought then, and think more firmly now, how much it is to be regretted that in a building of such architectural importance the first essential of the design should have been so neglected. Horizontal cases should be placed in brilliantly side-lighted rooms having windows on both sides. The cases should be at right angles to the windows and opposite to them.

Where side-lighting is used for vertical cases, they also should be placed in the same position and have glazed ends and tops. In both instances the spectator would therefore be standing in the shade of the wall between the cases, and the exhibits be well lighted.

A clear understanding of the simple principles

laid down is what is required for success. Anyone having this knowledge can put every design to an immediate test. There is no need to travel to

see them—no need for wandering Commissions. If a design is either conceived or executed in accord with the laws of light, it is good; if not, it must of necessity be bad, and no expression of opinion about it will make it otherwise. Fortunately there are not any conditions which are likely to modify the actions of the laws of light. They will always act under every condition exactly as stated. The lighting of galleries is therefore, so far from being a difficult problem, one of the most simple an architect has to

deal with. Very different is it with acoustics. In this science there are so many qualifying conditions almost impossible to determine, that while we are able to design a building in accord with the laws of sound, and thus ensure that it shall not be acoustically bad, still absolute success can never be predetermined. This is proved in the manufacture of violins. Two violins may be made with the same kind of wood and exactly similar in every respect, yet one may prove to be of incalculable value for its tone and the other valueless. The acoustic properties of rooms may vary in the same way, but not to the same degree.

In dealing with the laws of light nothing less than absolute perfection should be demanded in all cases, for if the lighting of our buildings is found defective in any respect, then the fault lies wholly in ourselves. There is not in any case the slightest excuse to be found for any degree of failure.

Knowledge of the laws, and the careful application of them, will enable us to fulfil after the lapse of years the editorial hope for a building which shall be "scientifically correct," and with the architectural skill in rational design which modern study has created we may confidently expect that such a building will also be "structurally perfect" and as "architecturally magnificent" as the circumstances demand and the funds allow.

Since writing the foregoing, I have received, and read with much interest, the paper, published in the *JOURNAL* for 13th April 1912, by Mr. Edwin T. Hall, to whom we are much indebted for bringing together so many examples and opinions on the subject. I have studied it and the discussion carefully in order to see what agreement our fellow architects in England have arrived at. By analysis of the expression of opinion of Mr. Hall, the opinion of the authorities quoted by him and of those who spoke at the meeting, it will be seen that we appear to be as far off any agreement as we were in 1907 when Mr. Weissman read a paper on the same subject.

On the question of lighting—the portion of the subject to which I have devoted my paper—there

seems to be hopeless disagreement even on matters of fact. Mr. Hall speaks very highly and quotes many opinions in support of side-lighting, and seems to infer that top-lighting is only adopted to enable greater wall space to be obtained, for he says: "The top-light in some form is so general and the convenience of being able to get a great amount of wall space for hanging on a limited site is so great that this system would always recommend itself for picture-galleries," so that we have here two reasons given for its continued adoption, namely, that it has been so often done before, and that it enables us to get a great amount of wall space. Yet a little further on he speaks with approval of top-lighted galleries on account of their excellence, and mentions those at Dulwich in these words: "Another form giving excellent results in an oblong gallery is a semi-circular or segmental roof with sloping side-lights divided by a flat plaster ceiling, or, in a square gallery, a centre skylight similarly divided by a flat ceiling, as in the Dulwich Gallery." He quotes an article in the *Times* which says: "Sir John Soane's method of lighting" (that is, the lantern-light shown in the sections) "is niggardly in a climate like ours. The difference between good and bad lighting is seen the moment we enter the new room." This opinion by the *Times* with reference to these rooms is exactly the opinion expressed by the *Architectural Review* with reference to the new rooms in the National Gallery which have been so strongly condemned. These rooms which Mr. Hall puts before us as examples to follow must of necessity be condemned, as they would produce, as can be seen by the sections, painful reflections in any glazed surfaces on the walls.

This is what inevitably must happen in every brilliantly but improperly lighted room. In the sections (fig. 16, page 404) of the Dulwich Picture-Gallery Mr. Hall has drawn lines at 45° on each section. In the left-hand section showing the new gallery they are drawn for the purpose of arbitrarily fixing the height of the skylight, and these lines are used in this and in the other sections for showing the amount of light which would fall upon the pictures from the lantern and ceiling lights. This is extremely misleading, as there is no reason whatever for attaching any greater importance to rays of light at 45° than at any other angle. Rays of light will pass through an opening glazed or unglazed at every angle. The greatest number of rays or beams of light will naturally pass through at right angles to the opening, and that portion of either wall or floor on which the beams fall will be the most brilliantly lighted, as shown by my diagram fig. 5. The number of beams will diminish as the angle with the opening increases. I have re-drawn the section of the Dulwich Gallery, fig. 9, and it will be seen that the greatest amount of light in this as in every other central top-lighted room, whatever the arrangement of the lights, falls upon the floor and

not upon the walls. The central flat solid ceiling referred to as forming a special feature in this gallery is of no value for the purpose of diminishing the light in the centre of the room. The diagram, fig. 9, shows that with the skylights at that angle the space below the flat ceiling where the spectators would be standing is the most brilliantly lighted part of the room, for the reason that the rays of light from both skylights are

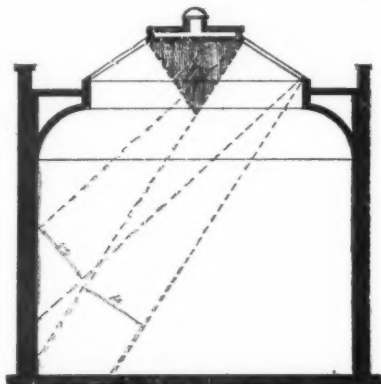
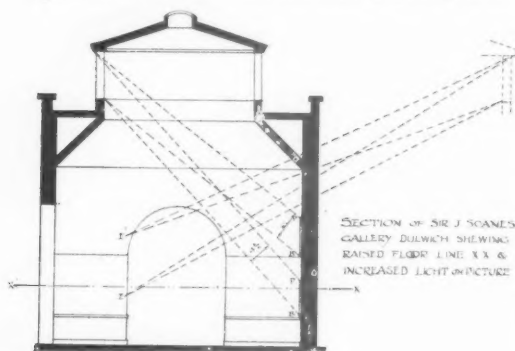


FIG 9
SECTION OF NEW GALLERY DULWICH
SHOWING STRONGEST LIGHT ON FLOOR

directed towards it. This effect Mr. Hall himself has condemned in a previous part of his paper, and quoted as I had done the late Sir L. Alma-Tadema in support of his contention. Here again the brilliantly lighted room has been praised apart from any consideration of the lighting being suitable for lighting the pictures for the display of which the gallery was erected. The method adopted by Sir John Soane is certainly a much more scientific one than that shown in the new galleries. But the fault as shown in the section of Sir John's gallery is that the lantern lights are too high so that the best illuminated part of the wall is close to the top of it as shown by the lines I have placed on the re-drawn section, fig. 10. It will be seen by the illustration on which I have drawn a new floor line, *xx*, that the lantern light could be lowered six feet without any inconvenience resulting from the reflections of the light, and the pictures would in this case be fairly well lighted and reflections diminished but not obliterated. They would be much better lighted if the lantern lights were inclined as seen in the Waterloo Gallery at Windsor, fig. 11.

Mr. Weissman's opinion "that the lighting in the National Gallery is extremely well managed," quoted by Mr. Hall, is perhaps another instance of visitors wishing to be polite to their hosts, a practice which a German visitor to the Town Planning Conference so strongly condemned. He could not otherwise have praised this nor given unqualified

praise to the lighting of the Tate Gallery. Both were severely and rightly criticised during the discussion. In the Watts Room at the Tate Gallery I particularly remember it was absolutely impossible to see the picture placed at the end of the room by reason of the reflections of the skylight upon it.



This is only what a little thought would lead us to expect. In both Mr. Weissman's and Mr. Hall's papers only the cross sections and therefore only the lighting of the pictures on the side walls of the oblong rooms are considered, following in this the example of Captain Fowke. The lighting of the pictures on the important end walls is disregarded,



FIG. 11.

with the result that they reflect not only the objects in the "well-lighted" room in common with those on the side wall, but reflect as well the range of ceiling lights. If a longitudinal section were drawn it would at once be seen that the skylights distant from the wall must of necessity be wholly reflected in the pictures. This could be obviated by placing a screen or suspending a curtain across the room

from the roof to the level of the top of the walls a suitable distance from the wall.

The interior and section of the Mappin Art Gallery shown on pages 405 and 406 are extremely interesting. These were new to me (the one published in the *Builder*, 18th October 1886, referred to in my paper, is, I presume, the original design which Mr. Hall states was not carried into execution). The scheme shows a closer approximation than any others to the principles I have evolved and expressed in my paper, but the gallery cannot be wholly successful for three reasons: *First*, the outer skylight is too far distant and would reduce the amount of light falling on the pictures. This would be still further reduced by the translucent level ceiling light. With such an arrangement there can be no brilliancy of effect. *Second*, the level ceiling light would illuminate the spectator, when standing at the entrance to the bay, as brightly as the pictures. The Gallery of Honour in the Ryks Museum fails for the same reasons. *Third*, the distance between the columns of the nave and the wall on which the pictures are hung is too short for the reasons given in my paper. A reference to section, fig. 7, will show how I consider these faults may be overcome.

The necessity for a much deeper study of the question from a scientific standpoint is clearly shown by the contradictory opinions expressed not only by the authorities quoted in Mr. Hall's paper but also by those taking part in the discussion. These expressions of opinion would lead us to believe that the subject is a hopeless one. I trust I have succeeded in showing the direction in which our studies must lie if any advance towards success is to be achieved.

It would be of the greatest value if plans and sections of existing galleries were made showing the exact position and size of window and skylights and stating the kind of glass used. The relative amount and value of the light on the walls and floor of the rooms should be ascertained by means of photo-printing paper metre.

Note.—The Wynnes metre is the one I used, and if all observers used this kind the results could be compared. The relative value can be immediately seen by the depth of colour the paper reaches in different parts of the room in a given time. This is, as stated in my paper, the method I adopted in studying the European galleries, but time did not permit me to make the study as accurate or as full as it should be made. The value of the exterior light should also be noted.

I hope to forward you studies of galleries here, and the results of experiments with different kinds of glazing, and if others will make exact observations of galleries elsewhere we should have a collection of scientifically acquired data of existing examples among which there will be no room for differences of opinion, and the proof of the laws of light and their application will be accurately determined.

THE LATE MR. NORMAN SHAW, R.A.

The announcement of the death of Mr. Norman Shaw in Tuesday's paper must have come as a shock to all artists in this country. It had been known to his friends for some time that Mr. Shaw had been in failing health, but the gallant spirit with which he met his illness made it hard to realise that the end was at hand. It is the close of a great career in the fullness of age and honour.

We are yet too near to attempt to appraise the quality of his work, the extent of his influence on the development of English architecture. By the ready consent of all, he had long been looked up to as the leading spirit in English architecture, perhaps the most remarkable English architect since the days of Sir William Chambers; it will be for the historian, later on, to attempt to define more clearly his position in English art. But all who ever came into contact with Norman Shaw will remember his most fascinating personality, his genuine and chivalrous friendship, his kindness to younger men, and the extraordinary influence that he had in stimulating them to a high and worthy conception of the art of architecture. I first made Mr. Shaw's acquaintance as a student in the R.A. School thirty years ago. The subject set by him as visitor was a pedestal for an equestrian statue. On this I was labouring blindly when Mr. Shaw came round to criticise my design. In a few casual remarks, half humorous, half serious, he unlocked the gate of a new world of ideas, and completely altered my outlook on architecture. So always, any who came to him for advice went away with a sounder and a more sober estimate of their own achievements, and yet cheered on to persevere and pursue their own ideal.

Norman Shaw was an artist, absolute and ingraind. To scholarship and learning he made no claim, but he possessed a mind of rare distinction, a shrewdness and clarity of intelligence that illuminated the darkest corner of any difficulty, made everything seem delightfully simple and easy, and did in fact suggest the way out to those less favoured than himself with resource and quick imagination. A man who disclaimed any powers as an orator or writer, he was in fact an admirable speaker, and few men have ever written more charming and characteristic letters. He handled every subject with an inimitable lightness of touch, letting his humour play on it, yet never losing sight of the essential purpose of his writing. To borrow a term from horsemanship, he had beautiful hands.

There has been a singular completeness about the career of this most distinguished architect. An

artist, and always an artist, he was indifferent to honours (I believe I am right in saying that he declined a baronetcy). He was equally indifferent to society in the technical sense. His whole power was concentrated on the art that he loved and to which he dedicated his life; and from the ideals that he formed in early life he never swerved. It has been a fine life: finely conceived and finely lived.

REGINALD BLOMFIELD.

Frogual, Hampstead :
20th Nov. 1912.

Richard Norman Shaw was born in Edinburgh in 1831, and received his general education in that city. He served his articles with William Burn, and on coming to London entered the Royal Academy Schools, where he obtained the Gold Medal in 1853 and the travelling studentship in the following year. In 1860 he became an Associate of the Royal Institute, but resigned his membership in 1868. After acting as assistant, first in the office of Anthony Salvin and afterwards with George Edmund Street, R.A., he was for some time associated in practice with W. Eden Nesfield. He was elected an Associate of the Academy in 1872 and a full Academician in 1877. In 1858 he had published his folio book *Architectural Sketches from the Continent*, a series of exceedingly fine drawings from cathedrals and other ancient buildings, drawn on stone by himself. To quote the interesting memoir in the *Times* of last Tuesday:

No one who knew Norman Shaw mainly by his later work would, on a mere inspection of these drawings, connect them with his name. It was only a year after their publication that a building, under the name of New Zealand Chambers, showed its frontage in Leadenhall Street, and gave the first outward indication of the real Norman Shaw. By the practitioners of architecture of the ordinary types, Classic or Gothic, it was received with a kind of bewilderment. They had never seen anything like it before. In the ground story symmetry of arrangement was discarded in a quite indecorous manner. Above the ground story four great brick piers went straight up, between which the wooden window-bays were played with, and a curved-out cornice with elaborate surface decoration in plaster projected over the piers. The details were suggested by late English classic—what was afterwards to be called "Queen Anne" work; and yet as a whole it was essentially Gothic in feeling, and showed that the architect had not been sketching mediæval work for nothing. Instead of a wall with windows in it, it was like the nave wall of a late Gothic cathedral, a series of buttresses which formed the structural portion, and between which the space could be treated as one pleased. This front, not very large, did much to fix its author's reputation, for it was one of the most startling outbreaks of architectural originality of which there is record in modern London architecture, and showed that its author was an architect who had his own way of handling materials, and who had, moreover, grasped the fact that architectural expression depends largely upon the treatment of structure, and not on the scenic addition of features supposed to be architectural.

It was, however, his domestic work that brought him prominently into note, and for many years the most interesting exhibits in the Architectural Room at the Royal Academy were the fine bold pen-line drawings from his own hand of one or other of his picturesque houses in town or country. Among the finest of the latter may be mentioned Craggside, in Northumberland, built for Lord Armstrong; Dawpool, in Cheshire; Chesters, in Northumberland; and Adcote, in Shropshire. Lowther Lodge, designed in 1874; Swan House, Chelsea, in 1877; houses in Cadogan Square in 1878, the corner house, 170 Queen's Gate, and his designs for the Piccadilly Hotel and the rebuilding of the Regent Street Quadrant, in 1906, are among the most striking examples of his London work. To quote the *Times* again: "In the large block of mansions close to the Albert Hall, where no great expenditure on architectural effect could be allowed, he nevertheless managed to give variety and some architectural expression by recessing portions of the exterior wall and grouping some of the windows under arches; the device is simple and inexpensive, but it has its effect."

Among ecclesiastical works, probably his designs for St. Michael's Church, Bournemouth, and St. Margaret's, Ilkley, are the best known. He also designed a good many public or semi-public buildings, such as the Alliance Assurance Office at the corner of St. James's Street and Pall Mall, the Central Offices of the Metropolitan Police, and Parr's Bank, Liverpool. New Scotland Yard, the most notable and the most generally admired of all, was made the occasion for a political attack on the then Chief Commissioner of Works. Sir William Harcourt's reference to it in the House of Commons that among new public buildings "the most recent is the least decent" provoked an instant and warm defence of the building by Mr. Walter Cave, Mr. Walter Crane, and Sir Wm. Richmond; and later Mr. Shaw was gratified by the publication of a common letter of protest and high approval from a large number of architects and other artists.

Of late years his advice had been sought by the Government and by the London County Council on various matters connected with London architecture. The question of the rebuilding of the Regent Street Quadrant, on which he was consulted by the Department of Woods and Forests, has already been mentioned. He also worked out the plan of a large scheme for the remodelling of Piccadilly Circus as a more extended place in rectangular form.* It is hoped, for the credit of London, that this scheme may ultimately be carried out. He assisted the London County Council in adjudicating on the merits of the tentative designs submitted by the group of selected architects for the architectural treatment of Kingsway and Ald-

wych, and refused any fee for the work, saying that he was only too happy to assist a public body desirous to improve the architecture of London. Unhappily nothing came of the competition and the scheme has fallen through.

Mr. Shaw was joint editor with Mr. T. G. Jackson, R.A., of the series of Essays on the Qualifications and Training of Architects, published in 1892 under the general title "Architecture: a Profession or an Art." His own contribution to the volume dealt with "The Fallacy that the Architect who makes Design his first Consideration must be Unpractical." It is, perhaps, open to doubt whether such fallacy ever existed; but most people will agree with Mr. Shaw's contention that "A true architect is far more likely to be a practical man, than a practical man to be a true architect."

Mr. Shaw passed away on Sunday the 17th November, after a long illness. The funeral service took place on Thursday at Hampstead Parish Church and the interment in the adjoining churchyard. Among those present at the funeral ceremony were Sir E. J. Poynter, P.R.A. [H.F.], Sir Aston Webb, R.A. [F.], Sir Wm. Goscombe John, R.A. [H.A.], Mr. Frank Dicksee, R.A. [H.A.], Mr. T. G. Jackson, R.A., Sir Ernest George, A.R.A. [F.], Mr. Ernest Newton, A.R.A. [F.], Mr. Leonard Stokes [F.], Dr. Burnet, A.R.S.A., Mr. Gerald Horsley [F.], Mr. W. R. Lethaby [F.], Mr. Mervyn Macartney [F.], Mr. Halsey Ricardo [F.], Mr. Edward Warren [F.], Mr. Wm. Woodward [F.], Deputy Mayor of Hampstead, several other members of the Institute, and Mr. Ian MacAlister, Secretary.

Publishers' Announcements.

The Cambridge University Press announce that they will publish very shortly *Byzantine and Romanesque Architecture*, by Mr. T. G. Jackson, R.A. This work, which will be in two volumes will contain an account of the development in Eastern and Northern Europe of Post-Roman architecture from the fourth to the twelfth century, with more than 300 illustrations, mostly from the author's sketches. It is attempted not merely to describe the architecture, but to explain it by the social and political history of the time. The description of the churches at Constantinople and Salonica, which will have a special interest at the present moment, is followed by an account of Italo-Byzantine work at Ravenna and in the Exarchate, and of the Romanesque style of Germany, France, and England.

Mr. B. T. Batsford will publish in a few days Mr. L. A. Shuffrey's long-promised work on *The English Fireplace and its Accessories from the Earliest Times to the Nineteenth Century*. He will also issue *Old Houses and Village Buildings in East Anglia*, by Basil Oliver [A.], forming the fifth volume of his well-known "Old Cottage" series. Both volumes will be fully illustrated by collotype reproductions of photographs of the most interest examples, accompanied by numerous sketches and measured drawings.

* Illustrated in the *Transactions of the Town Planning Conference*, 1910, p. 756.



9 CONDUIT STREET, LONDON, W., 23rd November 1912.

CHRONICLE.

Preservation of Ancient Monuments: Recommendations of the Joint Committee.

The Joint Select Committee of the House of Lords and the House of Commons on the Ancient Monuments Consolidation and Amendment Bill (House of Lords), the Ancient Monuments Protection Bill (House of Lords), and the Ancient Monuments Protection (No. 2) Bill (House of Lords) have issued their report. The Committee express the opinion that the Ancient Monuments Consolidation and Amendment Bill (House of Lords) should alone be allowed to proceed. They recommend that all monuments placed under the Commissioners of Works, or the council of a county or county borough, or the equivalent authorities in Scotland under Part II., and all monuments coming under Part III., should, under ordinary conditions, be exempt from any liabilities for probate or death duties. The machinery provided for the protection of ancient monuments is said to be too cumbrous, and the Committee recommend that a more rapid procedure be adopted. In any case provision should be made in cases of emergency, especially when Parliament is not sitting, that prompt action should be taken. Again, in the case of an ancient monument declared by the Commissioners of Works, on the recommendation of the Advisory Board, to be a monument of national importance, after an opportunity has been given to the owner to be heard, the consent of the Commissioners of Works should be obtained before any structural alterations are taken. All such monuments should be exempt from probate and death duties. The Committee consider it most important that churches now used for public worship should be protected in the preservation of their architectural and historic interest, especially when faculties are applied for in order to restore, alter, or repair them. The hope is expressed that the Bench of Bishops may take this matter under early consideration with a view to taking collective action. It is suggested, however, that, in all cases where a faculty is asked for, a public advertisement in the principal papers of the diocese should be published, with a notice that the plans may be

examined in the Diocesan Chancery, and a reasonable interval should be allowed for criticisms to be sent to the Chancellor. Whenever serious criticisms are made the Chancellor should secure the advice of a small committee—say three competent architects of repute—and due regard should be had to their report, such report and the final form of the faculty being made public. Although the Committee's recommendations as to churches only apply to England and Wales, they think that suitable provision in accordance with Scotch law should be made to protect historic ecclesiastical buildings of Scotland. Cathedral churches should be placed in a different category and should not be exempted from the operation of the particular clause. The Committee are strongly of opinion that such movable property as plate and other articles of historical and artistic interest as belong to a municipal corporation or to the Established Church should be subject to similar protection. In conclusion, the Committee suggest that a separate advisory board should be appointed for Scotland and for Wales, and that sufficient inspectors be appointed to visit periodically and to report on the condition of ancient monuments in their districts. The Committee also express a strong opinion that a special department in the Office of Works should be organised.

Old Cottages, Woodlands' Farm, Guildford.

The Records Committee desire to call the attention of architectural students to the contents of the following letter addressed to the Secretary of the Institute from the Society for the Protection of Ancient Buildings:—

11th November 1912.

DEAR SIR,—This Society has been trying to save from demolition the above-named very interesting old cottages, which are the property of the Guildford Town Council. The Council has, however, decided to pull them down, and, on hearing this, my Committee wrote to the Town Clerk suggesting that drawings and photographs should be made of the fine old oak staircase &c., so that a record might be kept. The Town Clerk (Mr. A. D. Jenkins) informs me that there is no objection to this, and my Committee wishes me to ask if you could bring the matter to the notice of your students in the hope that one of them might be ready to make measured drawings of the place. The Town Clerk asks to be informed when anyone goes, and, writing on the 2nd instant, says: "We shall not be pulling down the cottages for a month at any rate."—Yours faithfully,

A. R. Powys, *Secretary.*

Stafford House.

Sir William Lever, Bart. [*Hon. F.*], has purchased Stafford House from the Duke of Sutherland, with the intention, it is said, of devoting it to some public or national purpose. Stafford House,

which stands next to St. James's Palace and facing the Green Park, occupies partly the site of the library built by Caroline, wife of George II., and partly that of Godolphin House. The house was built for the Duke of York, the second son of George III., according to the designs of Benjamin Wyatt. The Crown lease was sold to the Duke of Sutherland in 1841 for £72,000. Sir Charles Barry was the architect of the upper story, which was added by the Duke of Sutherland, and Barry was also responsible for the modelling of the interior. The staircase is a very fine one, and the great dining-room has been described as "worthy of Versailles." The Sutherland Gallery is a magnificent room 136 feet long by 32 feet wide.

The San Francisco Exhibition.

Mr. W. D. Caröe, F.S.A. [F.], writes to *The Times* from San Francisco under date 1st November:—

Having been afforded the opportunity of examining in detail the scheme and plans for the great Exhibition projected here for 1915, and having visited the site, some notes written from the spot upon the subject may not be unacceptable. A preliminary competition was held before the site was finally selected, and that now chosen could hardly be surpassed, with its water front upon the renowned fairway known as the Golden Gate.

The general scheme of buildings is already approved, subject only to the working out of minor details. It has the novelty of being conceived in courts rather than independent blocks, and bids fair to be really monumental in character. If adequate in achievement, it promises to surpass any exhibition hitherto attempted, not even excepting Chicago. Architects will be interested to know that what has justly been called the "gingerbread" of exhibition design, known so well by all of us, is being studiously avoided, and a classic dignity sought in its place, and certainly achieved on paper in the designs I have seen.

The means of carrying such a scheme, upon a colossal scale, to a successful conclusion are peculiar to this country. One learnt with amazement that £1,000,000 (not dollars) was guaranteed by the citizens at the first meeting of the project, and that ten times that amount is likely to be at their disposal before the actual construction begins, every State in the Union and the Federal Government itself being contributors.

There is, however, the keenest desire expressed to make the occasion international, and specially that Great Britain should come forward in a manner worthy of her position in the world of commerce and the arts. Several admirable suggestions have been made to me as to the form which a British architectural court or pavilion might appropriately take, but it is obviously premature to enter into such details.

Sheffield as an Architectural City.

Some interesting suggestions relating to the architectural improvement of Sheffield were made by Mr. W. S. Purchon [A.] in a lecture on "Beauty in Architecture," delivered to a large audience at Sheffield University last Saturday. The lecture was one of a series of "popular" lectures open free to the public. Mr. Purchon, who illustrated his subject with some of the finest examples of architecture, dealt exhaustively with the impor-

tant qualities to be observed in architecture, such as unity of composition, points of concentration, symmetry, proportion, and scale, restraint of ornament, and sculpture, the use of materials, and the necessity for buildings to be true and genuine and suitable to their environment. What should be their relationship to architecture, he asked; was it something about which they should read, or travel long distances to see? Was it not rather that which they, as dwellers in a city, should see all about them, in their public buildings, shops, factories, and even in their homes? It might perhaps be difficult to light the lamp of beauty in the peculiar atmospheric conditions which prevailed in a manufacturing city. But he had heard it suggested that the atmosphere of Sheffield could be improved, and he should not be surprised to find that that was not beyond their skill in these days of engineering efficiency. Would it not be worth much to them if Sheffield was really a beautiful city—a city free from shams and ugliness; a city in which all the streets and buildings were pleasant to the eye and mind? Was it an impossible ideal for Sheffield to become a beautiful city? It was not impossible. It needed, chiefly on the part of the people, a great love of, and a great desire for the beautiful. When they as a people were as interested in the beauty of their buildings as they were in sport they would not tolerate ugly cities, and street improvements would no longer be considered only as problems concerned with traffic and the provision of sewers and water mains. The builder of a private house would remember that it was not only for the comfort of himself and his family, but that it was something which would give either offence or pleasure to countless passers by. That state of things was slowly but surely coming. Already people were becoming interested in such questions as town-planning and the provision of garden cities, and incidentally in beautiful buildings.

Architecture and the Public.

It has often been insisted on in this JOURNAL that in none of the arts is a correct judgment on the part of the public more necessary than in that of architecture. The suggestion was made here a few years ago [JOURNAL, 26 Sept. 1908] that the daily paper, by the occasional admission into its columns of competent criticism of architectural work, might be a powerful auxiliary in awakening public interest in the architecture of our cities. It is comforting to think that there is a possibility of the daily press coming round to this view. Mr. Harold Begbie writes in the *Westminster Gazette*:—

The only art which is of daily concern to mankind, which is also in the estimation of some the supreme art of human genius, suffers an almost complete neglect in the daily newspaper. Critics exist to tell us what novels we should read, what poet we should ignore, what music we should admire, what pictures we should talk about; but in no regular department of the newspaper do we find a criticism of architecture telling us

what houses we should live in and what cities we should build. . . . The subject is one which the public never considers because it is never presented.

This neglect by the newspaper is of very considerable seriousness. It means that there is no public opinion behind the good architect, no education in the public mind as to what is good architecture, no public indignation against the bad architect and the bad builder. It means that the art which of all arts can do the most injury to the greatest number is left without the least restriction of public opinion to be degraded in the hands of ignorance and greed. Painters may produce stupid or vulgar pictures without injury to the eyes of refinement; novelists may publish vapid or tiresome stories without damaging the soul of understanding; musicians may compose ridiculous or blatant songs without offending the ears of taste; from all these things—even without critics to warn us—we can escape very easily and live in goodly ignorance of their existence. But a bad architect by one bad building may make a whole city foolish and laughable, or, what is certainly much worse, he may entirely ruin a countryside of rare and exquisite beauty. . . .

One has only to go about the country for a few weeks to perceive the dreadful danger of this public apathy. In spite of a new and noble spirit among the younger architects of the day, in spite of the many beautiful houses which are now being built by these gifted and earnest men all over England, one sees that the triumphant march of the bad architect, with his cheap red bricks and his cheap slates, or the ignorant architect, with his unrefined and self-conscious effort to be interesting or impressive, is in no wise challenged or impeded.

One is inclined to wonder whether posterity will not ask us why we made such a tremendous pother even about the Insurance Bill and the Bill for Irish self-government, and said not a word, raised not a finger, to hinder the irreparable destruction of our lovely hills.

The motor-car is bringing home to the minds of men the frightful extent of this ruin. There is scarcely a town in the whole land the approaches of which are not as dull, as repellent, and as mournful as the slums of old cities. To escape from London into the country means that a man must run the gauntlet of misery and vulgarity, of shabbiness and impudence, for several miles; and to enter almost any beautiful old city in the country means that he must make his way through destitution and priggishness, through squalor and ostentation, for a dreary and depressing league or two.

The one question which concerns us is how we may best arrest this deadly movement of devastation.

My proposal is that newspapers should somewhat clip the Icarian wings of their music critics, their dramatic critics, and their art critics: should tell the public that musicians, playwrights, and painters are not of daily importance: and that in place of all this diurnal criticism of the second-rate and the negligible, they should devote their passion for better things to the art of architecture.

The Indian Master Builder.

The Annual Report on Architectural Work in India for 1912-1913, by Mr. John Begg [F.], Consulting Architect to the Government of India, affords a valuable and very interesting exposition of matters architectural in the various Provinces of India. The work is divided into two parts, Part 1 consisting of a General Review by Mr. John Begg, and Part 2 of details of works carried out under the

direction of the various Consulting Architects, supplemented with full-page plans and photographic reproductions of some of the chief works. Among the latter may be mentioned the New Secretariat, Calcutta (architects, Messrs. J. Ransome and John Begg); extensions to the Indian Museum, Calcutta (Mr. H. A. Crouch, architect); Calcutta Medical College, Poona Agricultural College, and Government Press, Dacca (Mr. John Begg); the Throne for His Imperial Majesty, the Tata Memorial, and the Government House, Bombay (Mr. G. Wittet, architect); New Council Chamber, extension to P.W.D. Secretariat, and the Coconada Chamber of Commerce, Madras (Mr. W. H. Nicholls, architect); Medical College, Lucknow, and Daly College, Indore (Colonel Sir S. Jacob, K.C.I.E., architect); Muir College, Allahabad (Mr. F. O. Oertel, architect).

Mr. Begg has something to say about the employment of native talent in the design of buildings for the new capital of India. Under the heading "The Indian Master Builder," he says:—

A curious question of the greatest interest to architects in India, and particularly to those in Government service, has been raised by a correspondent in *The Times*. This gentleman's contention was that the "Indian master builders," whom he represents as a race of traditional artists hitherto undiscovered by us, were the most suitable men for Government to employ on the design of buildings for India, and his plea was to the effect that these men should be sought out and employed on the buildings of new Delhi. He further contends that our policy in India has been such as to tend to the extinction of this race of artists, and insinuates that if we do not produce some of them in answer to his challenge it will prove either our Philistine objections to true art, or else that we actually have succeeded in killing out "the master builder." He has taken his stand in such a position that whether we produce a master builder or not he will claim victory either way.

Now if it should prove to be true that native Indian architectural art has died under our rule, I think it is very doubtful whether we should be blamed for it. Only art with little vitality could be killed by Government's letting it alone, which is all we are accused of doing. It must be unworthy to live if it cannot survive the want of direct Government patronage. No great art anywhere has had Government patronage. Individual patrons may have been members of Government—kings and emperors even—but it is owing to their own personal qualities, and their own private purses, or else their autocratic access to State moneys, that they have been effectual patrons. Does *The Times'* correspondent suggest that we should have employed public funds to bolster up the moribund art? I fear the Finance Department would have had a word to say about that. Surely Government's duty with regard to Public Works is limited to supplying legitimate buildings in a sound, economical, and business-like manner. All this means that the buildings must be well and artistically designed, in the truest sense; but it does not mean that public money should be expended in providing artificial props to an art that has not sufficient life in it to survive without such official aid. Indeed, art is so tender and elusive a thing that I fear such a hot-house system would only have hastened its death, or, what amounts to the same thing, would have

turned it into something which is not art. British officials as individuals have not been so wealthy as to justify their indulging in that "sport of kings," the patronage of architecture. They have had other matters than art to attend to, and it does not appear that they have attended to them badly. However, in the official architects who are now being steadily, if slowly, drafted into the service of the Public Works Department, we have a class of official who is chosen for artistic qualifications, and I am not without hope that under their guidance Indian art may yet be built up anew. But, as it will be living art and not dead antiquarianism, it does not follow that it will please everybody when it is built up anew.

The Times' correspondent (to whose views I should not have given so much space but for the fact that they have attracted wide attention, and, I believe, have occasioned some misapprehension in India) has lately moderated his plea. He asserts that certain official experts have declared the master builder to be a figment of his imagination, with the inference that the wish is father to the thought. I hasten to say that the architects of the Public Works Department are not of the numbers of such. Whom have we had to depend on for the carrying out of our work but Indian master builders and craftsmen? If there are more of these to be found and of better quality, we shall be only too glad to hear of it; and if there are higher uses to which they can be put, we shall be only too happy to employ them. Our bitterest complaint is of the poor quality of the class of assistance we are given in the country, both in our drawing offices and on the works.

Our critic's further plea is that the architecture of Delhi should be "Oriental in character or intention." No one can object to that, though I would remark that it conveys a different meaning from the antiquarianism which seemed to be revealed by his former letter. I would put it that—leaving the term "style" out of account, for that, as ordinarily used, is but a mode of archaeological classification—the architecture of new Delhi should be "in keeping with" the old in so far as that is possible while it is also in keeping with modern official life. To produce such a result we shall require the best and most sympathetic efforts on the part of the architects, and the assistance of the best draughtsmen and craftsmen whom the country produces.

There is one unfortunate circumstance of our building administration which I am surprised our critic has not alluded to—I mean the fact of the capture of certain of the building trades of Bengal by the Chinese. It is hard to think how this can be changed, but everyone who would see the crafts of India on a sound footing must wish it to be changed. They are fine workmen, these Chinese, but it is difficult to see that their presence is not helping to drive more nails into the coffin of Indian craftsmanship.

Defective Roofing-Tiles.

The Science Standing Committee invite members of the R.I.B.A. and others interested to forward particulars of instances of defective roofing-tiles which have come to their notice. It is desirable where possible that such particulars should be accompanied with samples of such defective tiles, with any remarks upon the nature of the defects and their cause, also giving information as to the make of the tile, *i.e.* hand-made or otherwise, with its place of origin, and any remarks upon the nature of the material from which the tiles were made.

Waterproof Concrete.

Some tests carried out by the United States Geological Survey and the Bureau of Standards on Portland cement in order to determine its permeability to water show that the concrete is less permeable in the case of mixtures rich in cement, and that the permeability increases with age. The permeability, however, is not dependent entirely on the quantity of cement used, but is also affected by the ratio of coarse to fine aggregate employed, for concrete made with a sand containing a large percentage of fine materials was less permeable than that made with larger particles. In general the experiments have shown that Portland cement mortar and concrete may be made practically waterproof at any hydrostatic head up to 40 feet without the use of any "integral" waterproofing materials, of which about 40 different kinds, purchased in the open market, were tested. But in order to obtain such impermeable concrete considerable care should be exercised in selecting good materials as aggregates and in proportioning them in such a way as to obtain a dense mixture which shall be sufficiently wet to enable it to be puddled and to allow the particles to flow in position without being tamped. The addition of waterproof compounds does not compensate for lean mixtures, for poor materials, or for inefficient mixing, nor do they have much effect on permeability. None of the compounds reduced the absorption materially before the samples were dried by heating at 212 deg. F., but some did decrease the absorption after the samples were so dried. None seriously affected the compressive or tensile strength in the quantities used in the tests, but the addition of inert void fillers up to 20 percent. of the volume of the cement increased the compressive strength.

The A.A. Conversazione.

A special feature of the Architectural Association Conversazione, held on Thursday the 21st, was the Exhibition of Prints and Drawings of Old and New London which had been arranged in conjunction with the London Society. As it is understood that this collection, with a large number of other drawings &c. lent for the occasion, will be on view for a few days longer, members who were not present on Thursday would do well to call and see them. The London Society Exhibition was in three sections, dealing with (1) the River Thames and its approaches; (2) St. James's Park and the Mall; (3) Regent Street. Illustrations of schemes for the improvement of London were included. The Conversazione was, as usual, admirably organised, and with the music and exhibits and the meeting of friends a very agreeable evening was passed by the numerous company present. The guests were received by the President Mr. Gerald Horsley, and Mrs. Horsley.

The Architects' and Surveyors' Approved Society.

The membership of this Society now amounts to about 1,600, a strong representative committee has been appointed, and it is confidently anticipated that the Society will be in every way a success. As already announced, the President R.I.B.A. has consented to act as President of the Society for the first year, and it is hoped that next year the President of the Surveyors' Institution will accept the position, the idea being that in future the office should be held alternately by the Presidents of the two bodies. The total cost of organising the Society has amounted to £200, an expense incurred almost entirely for printing, postage, and circularising. The committee, considering it undesirable that the Society should start encumbered with debt, have approached the institutions concerned with a proposal that the debt should be cleared off by the R.I.B.A. and the Surveyors' Institution contributing £80 each, and the Architectural Association and the Society of Architects £20 each. These amounts were arrived at by taking into consideration the membership of the respective bodies. It is understood that this arrangement has been agreed to, and the Council of the Institute at their meeting last Monday voted the Institute's contribution of £80. The Council of the Architectural Association have granted for the first year the use of an office rent free, with permission to hold meetings in the A.A. rooms.

The Use of English Timber : A Correction.

In the report of Mr. Ernest Flint's remarks at the Conference of the Science Standing Committee with the English Forestry Association, published in the last number of the JOURNAL, a correction is required in the opening sentence of the second paragraph on page 31 so as to read : "Mr. Flint asked to see a specimen of, say, *Pinus sylvestris* grown at home, as a sample of what could be produced and was sought to be placed on the market. He pointed out that English-grown timber, unlike that imported from abroad, is too quickly grown, was consequently too open in the grain, and was therefore not suitable for joiners' work."

The Shakespeare Memorial at Stratford-on-Avon.

In the obituary notice of Mr. W. F. Unsworth which appeared in the JOURNAL for 19th October mention should have been made of the fact that Mr. Edward J. Dodgshun [F.], of Leeds, was associated with Mr. Unsworth in his first success in the competition for the Shakespeare Memorial at Stratford-on-Avon.

New Councillors of the City of Westminster.

The following members of the Institute have been elected Councillors for the City of Westminster :—Messrs. George A. Hall [F.], Howley Sim [A.], Leonard Stokes [F.], and William Woodward [F.].

THE EXAMINATIONS.

The Final : Testimonies of Study : Subject V.

The designs submitted in Subject V. by the students mentioned below who are entering for the Final Examination have been approved by the Board of Architectural Education :—

(a) DESIGN FOR ART GALLERY.—H. Charlton Bradshaw, J. Carey, A. D. Clare, G. Davidson, A. E. Davidson, N. S. Dixon, W. E. Foale, E. Gee, F. Jenkins, T. T. Jenkins, S. Stevenson Jones, F. O. Lawrence, B. A. Miller, N. Bewboul, A. N. Shibley, S. Soper, A. Thomson, W. H. Thompson, A. Wilson.

(b) DESIGN FOR A VILLAGE CHURCH.—H. R. Atchison, P. D. Bennett, Allan L. Freaker, H. J. Higgs, Robert M. Love, E. A. L. Martyn, F. James Maynard, A. Nisbet, A. J. Sparrow.

The Statutory Examinations : Building Surveying.

An Examination of candidates for the Office of District Surveyor under the London Building Act (held by the Institute pursuant to section 140 of the Act) and of Building Surveyor under Local Authorities took place on the 24th and 25th October. Seven candidates attended (six for the District Surveyors' and one for the Building Surveyors' Examination), and the following four passed and have been granted Certificates of Competency to act as District Surveyors in London, viz. :—

SIDNEY WALTER BENSTED [A.], Rossdene, Gloucester Road, Kingston Hill, Kingston-on-Thames.

BENJAMIN CHAIKIN [Licentiate], 47 White Lion Street, Norton Folgate, N.E.

JOHN DOVASTON [A.], 14 Madeley Road, Ealing, W.

LAWRENCE ALEXANDER DAVID SHINER [A.], 7 Adam Street, Strand, W.C.

OBITUARY.

The late George Enoch Grayson.

George Enoch Grayson, of Egerton Park, Rock Ferry, Cheshire, who died on the 7th November at the age of seventy-eight, was elected a Fellow of the Institute in 1886, and had served on the Council and on the Practice Standing Committee. He was a past President of the Liverpool Society of Architects. Mr. John Woolfall [F.], of Liverpool, has kindly contributed the following notes of his career :—

Mr. Grayson started his apprenticeship about 1852 under Mr. Sayle, an architect, partner in the firm of Haigh & Co., builders, Liverpool. An active and keen business man, whatever calling he had adopted he would have pushed it to success. He was a Churchman in religion, but took no active part in politics. He was best known in his native city by his extensive practice, which reached very large dimensions, and the following list compiled from memory will give some insight into the variety of the work he was engaged in, which was

as complex as it has ever been the lot of one man to grasp and carry out.

Churches: Ditton, Lancashire; St. Silas, Toxteth; Emanuel and St. Ambrose, Liverpool; Allerton Memorial Church; Woolton Parish Church; St. Mary's, Liscard, and Wallasey Cemetery and Chapels; St. Faith's, Crosby.

Office Blocks in Liverpool: Scottish Provident, Scottish Equitable, Queen Insurance and Arcade, British & Foreign Marine Insurance, Standard Marine, Edinburgh Life Assurance Co., 14 Castle Street, 28 Castle Street; Leylands Bank Buildings, Victoria Chambers, Castle Street; Old Castle Buildings, Preesons Row; Alexandra Buildings, James Street; Redcross Chambers, Redcross Street; Union Bank Buildings, Fenwick Street; Head Office for Bank of Liverpool; Victoria Street Branch for same Bank; Union Bank, Bold Street Branch; Park Road Savings Bank; and Scotland Road Savings Bank.

His public buildings include the Mersey Tunnel Stations at James Street, Liverpool, and Hamilton Square, and Central, Birkenhead; the enormous Grain Storage at Bootle, the Annexe at the Rainhill Asylum for 1000 patients; Cold Storage and Ice-producing Works, Williamson Square; Works for Messrs. Allen & Co., steamship owners; Warehouse on the Thames for Carron Co.; ferry approaches and buildings connected with the Seacombe Ferry, Cheshire; buildings and ferry approaches to the North Shore flour mills; and buildings and ferry approaches to Messrs. Blackledge, Cleator Moor Offices and Market; Concert Hall, Liscard; and City Liberal Club, Walbrook, London.

Schools: Emmanuel Church School, St. Peter's, Sackville Street; several for the Liverpool School Board; and additions to Trinity Hall, Cambridge.

Some of the principal residences carried out by him are Bidston Court, Thornton Manor, Whitwick Manor, House for Sir Reginald Hardy, rebuilding Irton Hall, Cumberland, Kilhow, Cumberland, and others around Liverpool almost innumerable.

When to all this is added surveys, valuations, alterations, and additions to existing buildings of all kinds, it will be generally agreed that it makes a total worthy of a busy life.

Charles Henry Rew, who died on the 4th October, at Great Berkhamsted, where he had practised for nearly thirty years, was elected a Fellow of the Institute in 1905. He was born in Exeter in 1842 and came of an old Devonshire family. He served his articles with the late Thomas Whitaker, Architect and County Surveyor in Exeter, and subsequently entered the office of the Town Surveyor of Brighton, the late P. C. Lockwood, and was with him when the drainage scheme of Brighton was carried out. Leaving Brighton he was for some years in the office of the late George Edmund Street, R.A., and worked on the Law Courts, Christchurch Cathedral, Dublin,

Bristol Cathedral, and other well-known ecclesiastical buildings. He afterwards practised for a time in London and in 1884 removed to Great Berkhamsted. Many important local buildings were carried out from his designs, among them the Chapel at Berkhamsted School, the Science School, and other extensions to the School buildings. He also designed the Homes of Saint Barnabas, East Grinstead, the Swimming Bath at St. Paul's School, Hammersmith, a number of houses, and interior work for various Hertfordshire churches. Latterly, in conjunction with his son, Mr. Noel Rew (*Licentiate*), he designed the Dean's Hall, new Junior School and Sanatorium for Berkhamsted School, the Smith Dorrien Memorial at Berkhamsted, and All Saints Church, Berkhamsted.

Votes of Condolence.

At the General Meeting last Monday Mr. E. Guy Dawber, *Vice-President*, who is acting as Hon. Secretary during the illness of Mr. Henry T. Hare, announced the long list of losses which the Institute has suffered by death since the closing meeting of last session [see p. 64]. Obituary notices of most of them have already appeared in the JOURNAL.

On the motion of Mr. Dawber the following resolution relating to the late Sir Lawrence Alma-Tadema was passed by the Meeting: "That the Royal Institute of British Architects do place on record its profound sorrow for the loss it has sustained by the death of its distinguished and highly esteemed Hon. Fellow, Sir Lawrence Alma-Tadema, O.M., R.A., and do offer an expression of sincere sympathy and condolence to his family in their sad bereavement."

Mr. Dawber also asked the Meeting to pass a vote of condolence with the family of Mr. Sydney Smirke, whose generous contributions to the Institute Library, extending over many years, had always been most gratefully appreciated. Also that a similar vote be passed to the family of Mr. George Enoch Grayson, who might be considered the *doyen* of Liverpool architects, and who, after some fifty years of strenuous work, retired from practice on the last day of 1900. Mr. Grayson was a Past President of the Liverpool Architectural Society and had served on the Council and on the Practice Standing Committee of the Institute. Mr. Dawber said he felt sure the sympathies of the Institute would be extended to his son, Mr. Hastwell Grayson, who was a member of their present Council. Finally, he asked that a vote of condolence be passed to the sister of the late Mr. Edward I'Anson. Mr. I'Anson, who was a son of one of their past Presidents, was a great friend of the Royal Institute, and came of a long and distinguished line of architects. No fewer than three generations, of which he was the third, had occupied and carried on their practice in the same office in the City.

LEGAL.

Architect's Responsibilities: Supervision of Building: Damages for Defective Work.

MACBETH v. BEARDMORE.

Through the instrumentality of the Practice Standing Committee, Messrs. Fraser & Ross, Solicitors, of Inverness, have kindly favoured the Institute with a copy of the judgment delivered by Mr. J. P. Grant, Sheriff Substitute, in the case of *Macbeth v. Beardmore*, heard at Inverness in the month of May last. The Practice Committee consider the case of such importance to the profession generally that a record of the decision should be preserved in the JOURNAL for the information of members. The facts are sufficiently brought out in the learned Sheriff's judgment, which, omitting portions not material for the present purpose, is as follows:—

The Pursuer in this case, an architect (who is now represented by his Executrix), sues for the balance of his professional fees for work done for the Defender. It was admitted at the proof that the amount of remuneration claimed was correctly stated, provided that the Pursuer had properly and efficiently executed his duties as architect. That is the issue between the parties, and the onus is on the Defender to prove that the Pursuer failed to properly execute these duties. There is also a claim for outlays which does not appear to me to be disputed.

The Pursuer was employed in the usual way to draw plans and specifications for the proposed work to be executed for the Defender, a surveyor being employed to draw up the schedules of quantities; but this does not exhaust the Pursuer's duties on the scale of remuneration allowed (5 per cent.); he was also charged with the duty of superintending the building operations; upon his certificate the contractors were paid; and his final certificate implied that the contractors had fulfilled their contracts with the employer. So much is settled by the cases quoted below, and was admitted by every witness in the case who was an architect and examined on the point.

The first question, then, that arises is what was the contract in relation to which the Pursuer had this duty of superintendence? There is a building contract in probative form between the Defender and the various tradesmen, No. 9 of Process; and that document incorporates by references a specification by the Pursuer as architect, No. 10 of Process, and the Schedule of Measurements, No. 11 of Process, by the witness, Mr. Henry, a surveyor. The contract was not signed for two or three months after the work had begun; but the work had been begun upon signed offers by the respective tradesmen, which also referred to both the specification and the schedule. It does not seem to me to be material that the actual written contract was not signed before the work commenced; it in no way altered, either to extend or diminish, the obligations of the tradesmen; whether under the offer and acceptance or under the contract, they were equally bound to execute their work in conformity with both the specification and the schedule. Just the same questions arise whether under the offer and acceptance or under the written contract. In fact, the written contract was the homologation of the offer and acceptance, with the addition of further stipulations in regard to time and other matters which do not affect the issue in this case. It is true that the offers refer to schedule "rates" only without specific reference to the notes prefixed to the schedule, but to ascertain the schedule rates it was necessary to refer to the schedule, and the notes are part of that schedule. The contract is in

writing, whether in one or other or both of these it does not matter which, and I cannot look beyond the writing to discover it.

Taking, then, the written contract, as contained in Nos. 9, 10, and 11 of Process, the duty of the Pursuer as architect was to see that the Defender as his employer got what he had contracted for. The law is clear, *vide Steel v. Young*, S.C., 1907, p. 360, *Ramsay v. Brand*, 25, *Rettie*, 1912, and *Jamieson v. Simon*, 1 *Fraser*, 1911. An architect has no power to sanction deviations from the contract in anything that matters without the consent of his client, even to make a better job; doubtless in practice an architect often does, and trusts to his client's subsequent ratification of his experience and knowledge; but he does so at his own risk. In unforeseen and unprovided-for contingencies the architect may have a wider discretion, *e.g.* he might substitute the next best for what it is absolutely impossible to procure; but he is there primarily to see that his client gets his bargain and nothing more or less.

Taking the contract in the present case, in the architect's Specification of Works he has provided for the mason work that "all stones for the dressings to be from a Morayshire quarry approved of by the architect, and all stones must be of sound, hard, durable white rock of uniform colour, and entirely free from all blemishes, such as iron stains, clay pits, and pebbles." In the surveyor's schedule in the notes it is provided that "freestone for dressings to be taken from Newton or Covesea Quarries of the best liver rock free from defects of every kind and all stones to be laid on their natural or quarry bed."

Now, it is to be observed that in these two separate sets of directions to the mason there is nothing in the one in the least contradictory of the other. Covesea, the stone selected by the architect, is a Morayshire quarry; "free from defects of every kind" includes the condition that it "be entirely free from all blemishes such as iron stains, clay pits, or pebbles." The specification only mentions "white rock of uniform colour;" the schedule only "liver rock," but the evidence shows that liver rock can be white rock of uniform colour; and, lastly, only the schedule requires that stones be laid on their natural or quarry beds. The schedule and specification can be read together without any contradiction, or even difficulty, though sometimes one, sometimes the other, is the more precise.

It was argued, however, that the contract that the Pursuer had to supervise was that set forth in the specification alone; that what was contained in the schedule he had no knowledge of or responsibility for. In so far as the schedule is a Schedule of Measurements only, I could believe that the surveyor alone was responsible; but if the schedule is incorporated in the contract between the employer and the tradesman, it comes, *ipso facto*, within the architect's cognisance, because he is charged with the duty of seeing that contract carried out; and if the surveyor has added general conditions to his Schedule of Quantities, as in this case, I cannot see how the architect can avoid responsibility for them. Other questions might be raised if the specification and schedule were irreconcilable; but here they are not. Nevertheless, assuming that the architect is there to see the contract carried out and that his final certificate means that in his opinion it has been carried out, I cannot but hold that he is bound to inform himself of what the contract is. In this case the Pursuer knew that a formal building contract was contemplated; it was sent to his office to be executed by the contractors; he could have informed himself of its contents on that occasion; or asked to be furnished with a copy, which he never did.

There can be no question, on the evidence, that the

contract for the mason work on the combined specification and schedule was not properly carried out. The stones were not of uniform white colour, and many of them were not placed on their natural or quarry beds; and to remedy these deviations by replacing these stones would take a large sum of money; but that is the Defender's demand. . . .

On this view I have to assess the damage due to the Defender only for the mason work being disconform to the contract. He has elected to take his remedy in the form of damages, which (as regards the mason work) he assesses at the sum of £1,502 16s. 6d. sterling in No. 125 of Process, but restricts to £750 (as regards the mason work) in his defence. From this sum due a deduction must first be made for stones that have since disclosed imperfections not apparent at the time of building, which the Pursuer has had no opportunity of putting right. The Defender's complaints seem to have taken a long time to formulate in their present shape; but that may be reasonably accounted for by his requiring expert advice. At first he complained of the colour of the stones only and of their porosity. As regards the colour, I cannot doubt the weight of the evidence that Covesea stone usually weathers to a lighter shade; but still there are now strongly coloured stones in the building which are disconform to the specification. As to the porosity of sound Covesea stone, I accept the unanimous verdict of the architects who habitually use it, that it is one of the most impervious freestones in use; and the weight of the evidence shows that the leaks in Flichty House at the tower, the billiard-room, and other places complained of were due to defective pointing of joints, and not to the porosity of the stone, and could have been rectified by the Pursuer if he had been allowed to do so out of the unpaid balance of the mason contract, as also could the replacement of visibly defective stones, which was his reasonable offer to settle the matter. The objection to the stones being "on cant" was not before him at that stage. Finally, I cannot impute any blame to the Pursuer for neglecting to visit the work in progress; there was a resident clerk of works, who regularly reported, and in these circumstances I think his visits were frequent enough according to the practice of the profession. Neither am I prepared to entertain the claim for £500 damages for depreciation, because I think that if the Defender had allowed the Pursuer to overhaul the work in reasonable time the job would have been, for practical purposes, a good one.

I have therefore fixed a sum which represents only the damages due on account of some stones being darker in colour than the Defender was entitled to expect, and of a considerable number being on cant instead of on their natural or quarry beds, disregarding the claims for alleged porosity which I hold did not exist, or for defective pointing, or for individual stones which show a tendency to decay, for these the Pursuer offered to put right. The colour is doubtless a disappointment to the Defender; he was entitled to expect freestone of a uniform colour that could reasonably be called white, but he has not got it; and he was equally entitled not to have any stone on cant; though, on the evidence, I doubt whether his house is any the worse for this deviation from the contract. The Defender has changed his position materially since he first made his claim. He has failed to a large extent in his claim as on record—for example, as to the carpenter work and the porosity of Covesea stone. The Pursuer's only fault was that he gave too wide a latitude to the matter of colour, and allowed the freestone to be placed on cant, not, as I think, to the Defender's disadvantage, but without his sanction. In

assessing the damage I allow for what I think it would cost to make good these deviations. I take into consideration that there is a balance of fees due to the Pursuer; that it is not a case where the requisite repairs are necessary for the use or convenience of the building, as in the case of *Jamieson v. Simon*, quoted above, and that the Pursuer was not allowed to make good the ordinary imperfections that might be expected to disclose themselves, for that is the cause of any damage the Defender may have suffered from water coming into his house, which the colour or position of the stones had nothing to do with. I therefore think the sum of £200 sterling, in addition to the balance of fees unpaid, is as much as he can reasonably claim. In the whole circumstances, I do not think I should award expenses to either side.

MINUTES. II.

At the Second General Meeting (Ordinary) of the Session 1912-13, held Monday, 18th November 1912, at 8 p.m.—Present: Mr. Reginald Blomfield, A.R.A., *President*, in the Chair; 17 Fellows (including 9 members of the Council, 24 Associates (including 1 member of the Council), 14 Licentiates, and numerous visitors—the Minutes of the Meeting held 4th November 1912, having been published in the *JOURNAL*, were taken as read and signed as correct.

Mr. E. Guy Dawber, *Vice-President*, acting in the absence of the Hon. Secretary, formally announced the decease of the following members: Sir Lawrence Alma-Tadema, O.M., R.A., *Hon. Associate*, elected 1877, *Hon. Fellow* 1901, *Royal Gold Medallist* 1906; Sydney Smirke, *Fellow*, elected 1888; Thomas Arnold, *Associate*, elected 1867, *Fellow* 1904, placed on list of *Retired Fellows* 1904; George Tunstal Redmayne, *Associate* elected 1872, *Fellow* 1877, *Retired Fellow* 1902; Henry Hall, *Associate* elected 1872, *Fellow* 1887; John Thomas Bressey, *Fellow*, elected 1877; George Friend, *Fellow*, elected 1888; William Frederick Unsworth, *Associate* elected 1882, *Fellow* 1891; Francis Edward Masey, *Fellow*, elected 1901; Edward Blakeway I'Anson, *Fellow*, elected 1880; George Enoch Grayson, *Fellow*, elected 1886; Charles Henry Rew, *Fellow*, elected 1905; John S. Paul, *Associate*, elected 1886.

On the motion of Mr. E. Guy Dawber, it was

RESOLVED, that the Royal Institute of British Architects do place on record its profound sorrow for the loss it has sustained by the death of its distinguished and highly esteemed Hon. Fellow, Sir Lawrence Alma-Tadema, O.M., R.A., and do offer an expression of sincere sympathy and condolence to his family in their sad bereavement.

Votes of condolence were also passed to the nearest relatives of the late Mr. Sydney Smirke, Mr. G. E. Grayson, and Mr. Edward I'Anson.

The Secretary announced the results of the Statutory Examinations held by the Institute in October.

The following, attending for the first time since their election, were formally admitted by the President: William Arthur Rigg, *Associate*; John Walsh, *Licentiate*.

Mr. J. L. Ball, Director of the Birmingham School of Architecture, having read a Paper entitled "Bath: A Comparative Study," a discussion ensued, and a vote of thanks, moved by Mr. Mowbray A. Green [F.], and seconded by Mr. L. March Philipps, was passed to Mr. Ball by acclamation.

The proceedings then closed, and the Meeting separated at 9.45 p.m.

